STANDARD OPERATING PROCEDURES (SOP)
FOR
THE COAST GUARD'S TRAINING SYSTEM

Volume 2

ANALYSIS

Coast Guard Performance Technology Center
Office of Workforce Performance, Training and Development
Assistant Commandant for Human Resources

Coast Guard Headquarters
Washington, DC
March 2008

The Performance Analysis Branch strives to improve the Analysis SOP on a continual basis. Please email questions and suggestions on how to improve it to TCYPF-PTCAnalysis@uscg.mil.

SECTION I: Coast Guard Human Performance Technology

Human Performance Technology (HPT)

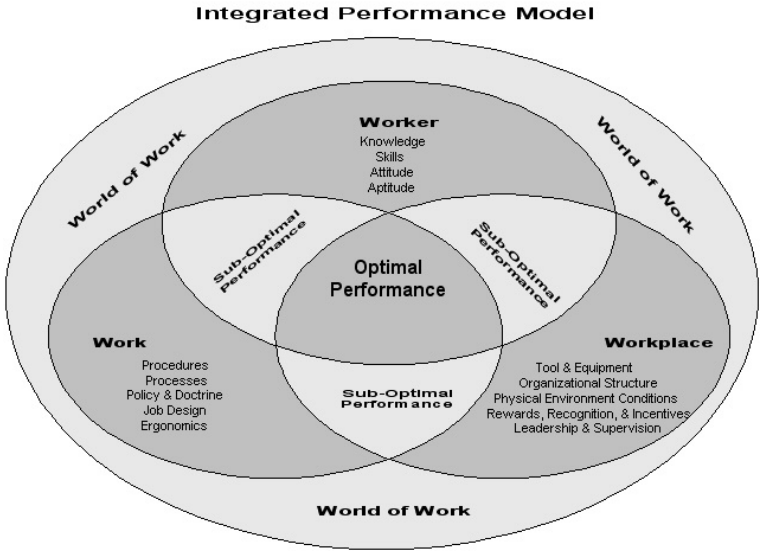
Dr. Thomas F. Gilbert, the father of Human Performance Technology, developed many innovative concepts that have provided the HPT discipline with a plethora of principles that are axiomatic today. But, none so insightful as his insistence that the economic costs of training are significantly high enough as to warrant our immediate and constant attention through analysis; and, that training should be primarily mission related and performance-based; not knowledge-based and behavior-focused. Dr. Gilbert drew a strong distinction between meaningless activity masquerading as job performance and value-added accomplishments that are mission focused.

The contents of this SOP document are thus exclusively focused on providing the following critical success elements:

- Analytic methodologies that recognize and record all of the factors that influence job-site performance
- Analytic tools that are mission related and performance-based
- Cost comparisons, cost-benefit analyses, and return on investment calculations that enable the Coast Guard to choose wisely among the competing instructional delivery modalities

World-of-Work Influences: Work, Worker, Workplace

The graphic below describes the holistic approach that Dr. Gilbert emphasized and includes the interactive elements that influence how well a job-task is performed. A close examination of the graphic will help to clarify the fundamental truth that the best worker in the world will not be able to produce exemplary results if he or she does not have the right tools and is not given organizational support for their activities. Conversely, the best tools in concert with the best organizational support will not produce exemplary performance if the worker is incapable of producing worthy results. Exemplary performance, therefore, is only achieved in a synergistic collaboration of the worker, the work, and the workplace.



Why Does the Coast Guard Do Analysis?

HPT methodologies require that analysis outputs be based on data and validated using other high-level direction rather than on a person's individual desire. Some have characterized this goal by using the phrase, 'let the data drive the decisions.' What analysis does is to ensure that Coast guard activities, outputs, and goals complement each other to reduce or eliminate validated requirements or risks. The end result of relying on systematic analysis is that these requirements are directly linked to validated organizational goals and objectives. Since risks are the uncertainties that threaten the possibility of not achieving critical human performance outcomes relevant to organizational missions, analysis is one of the critical success elements of the processes required in a credible HPT strategy.

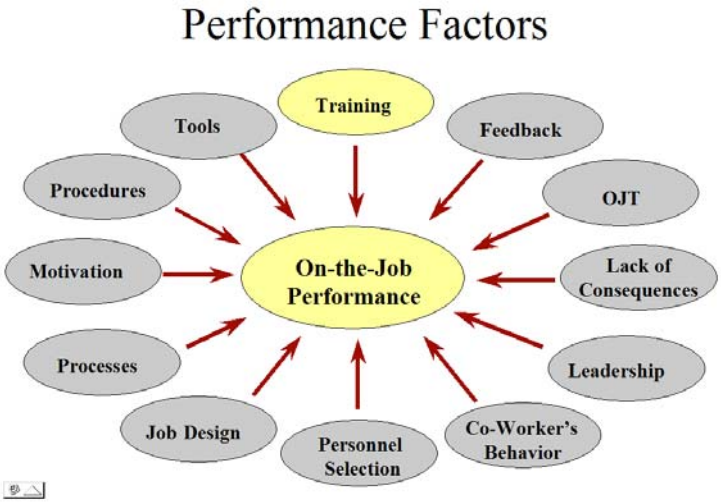
Analysis is also an important link to producing cost-effective training. This is why the Coast Guard has adopted the requirement that all training be subjected to a rigorous analysis prior to being funded in the formal training system. The Coast Guard enjoys the reputation of being one of the few military organizations that routinely conducts analysis before developing training interventions. Analysis before solutions ensures that we don't jump to training as the preferred solution to every performance problem or need. Why isn't training the answer to every performance problem? Because, as we saw in the Integrated Performance Model earlier in this section, the world of work is influenced by many factors, not just the skill and knowledge of the worker. To ensure that we have examined the entire world of work, we must evaluate all of the factors that work together to influence performance outcomes if we want to ensure exemplary performance and flawless mission execution.

HPT methodologies help the Coast Guard to focus on what the real performance problems are and what influences are impacting performance. Based on the information gathered, we can determine what has to be changed in the "system" to achieve effective and efficient mission execution. An HPT approach will:

- Support an "analysis first" approach
- Ask those analyzing Coast Guard performance problems to examine all organizational influences on performers
- Provide analysts with tools and processes for identifying a solution set that closes all gaps affecting human performance
- Help the Coast Guard figure out the "right" performance supports for the best cost

Human Performance Factors

As we saw in the Integrated Performance Model earlier, there are many factors that influence performance in positive and negative ways. The Performance Factor graphic below is another way of conceptualizing this fundamental principle and to understand why CG-132 requires all projects to begin with a comprehensive analysis.



What Role Does Analysis Play in CG Decision Making?

Analysis is the primary tool for providing detailed and comprehensive information to Program Managers, Training Managers, and Acquisition Managers so that they can make informed decisions regarding the deployment of financial, personnel, and materiel resources. The Commandant and Chief of Staff have increasingly determined that conducting analysis before taking action can significantly reduce the risk of making bad decisions. Current directives require analysis managed by CG-132 prior to the implementation ofr development of new training solutions.

How Does the Analysis SOP Relate to the Other SOPs?

The Coast Guard Training System's SOPs define terminology, provide procedural guidance for both internal and contractor support. The purpose of each of the SOPs is to provide default methodologies for much of the work within the Training System. The Analysis SOP contain the "how-to's" that all analysts shall follow to ensure all Coast Guard members are using the same proven processes to obtain consistent and quality outputs.

The Analysis SOP has a critical relationship to the other Coast Guard Training System SOPs because it outlines the process to be followed in all cases. When Program Managers have a performance problem or need, they have a standardized process to follow for requesting, developing, or purchasing performance interventions (including training). As a secondary benefit, the Analysis SOP provides the same default methodology to prospective contractors, responsible for producing training-related materials or performance supports for the Coast Guard.

SECTION II: Management of the Coast Guard Analysis Process

Introduction

This section describes how analyses are initiated, implemented, and managed by the CG-132 training system. There are three primary sources of analysis projects: (1) major systems acquisition projects, (2) program sponsor funded projects, and (3) program sponsor unfunded projects. The management of the process of doing an analysis is slightly different depending on the originating source of the request.

The primary source document for the acquisitions projects and the program sponsor funded projects is typically the Performance Work Statement (PWS), while the primary source document for unfunded projects is the Request for Analysis (RFA) form. While each of these two sources starts out differently, the elements of the process are quite similar in function, but dissimilar in scope. However, despite differences in the how the project starts, an RFA form will always be submitted to ensure that the project is actively monitored and managed within the RFA management system.

The Office of Training, Workforce Performance, and Development (CG-132) is responsible for managing Coast Guard human performance analysis projects. The following factors have significant impact on the way each project is managed and the resources that are committed to the project and the schedule for completion that is assigned to it. The natural prioritization that occurs is a function of four critical elements: (1) funding availability, (2) organizational needs, (3) analysis work-force capacity and, (4) work-force availability. Although it is not possible to have direct control over all of these factors all of the time, CG-132 works closely with the various program sponsors, CG-93 (Acquisitions), and CG-91 (Contracting) to ensure that each project is focused on key human performance outcomes that will provide cost effective solutions that are ultimately linked directly to value-added mission execution requirements.

Purpose

The purpose of this section is to explain the process and to list the procedures the Coast Guard uses to manage human performance analysis projects.

Target Audience

The primary users of this process are the CG Headquarters Program Managers, Acquisitions Project Managers, and the external or internal analysis project teams who will be using the results of these RFAs.

USERS	ACTIONS
Program Managers (funded)	Funded projects will use this SOP to engage with CG-132 to assist with the following elements: • Develop RFA to assist in the writing of the PWS • Preparation of the Performance Work Statement (PWS) • Conducting of alignment meeting • Evaluation of Project Management Plan • Quality control of interim milestone deliverables • Evaluation of final analysis report • Preparation of plans for further action

Target Audience (continued)

USERS	ACTIONS
Program Managers (unfunded)	Unfunded projects will use this SOP to engage with CG-132 to assist with the following elements: • Preparation of the Request for Analysis (RFA) • Acquire funding • Evaluation of Project Management Plan • Quality control of interim milestone deliverables • Evaluation of final analysis report • Preparation of plans for further action
Acquisition Project Managers	Funded Acquisition projects will use this SOP to engage with CG-132 to assist with the following elements: • Develop RFA to assist in the writing of the PWS • Preparation of the Performance Work Statement (PWS) • Conducting of alignment meeting • Evaluation of Project Management Plan • Quality control of interim milestone deliverables • Evaluation of final analysis report
Contractors	Contractors will use this SOP to engage with CG-132 to assist with the following elements: • Ask questions to clarify provisions of PWS • Preparation of the Project Plan • Conducting of alignment meeting • Evaluation of Project Management Plan • Quality control of interim milestone deliverables • Evaluation of final analysis report
CG Analysis Teams	Funded projects will use this SOP to engage with CG-132 to assist with the following elements: • Interpretation of the Performance Work Statement (PWS) and/or RFA • Conducting of alignment meeting • Develop Project Management Plan • Quality control of interim milestone deliverables • Evaluation of final analysis report

CG-132 Roles and Activities in the Major System Acquisition Process

The following table provides an overview of the relationship of the Major System Acquisition process to the process of providing timely and meaningful feedback to the Acquisitions Project Manager in concert with the Program Sponsor so that they can make informed decisions based on real-world data.

The primary goal of this integrated model is to ensure that the systemic contribution of the human performance component to all major projects is not overlooked or undervalued and that all required resources are planned for and implemented in a timely and effective manner. Detailed information regarding the Major System Acquisition process is contained in Section 3.6 (Performance Systems Analysis) of this SOP.

INTEGRATED MAJOR SYSTEMS ACQUISITION PROCESS MODEL

<table>
<tr><th colspan="3">MISSION REQUIREMENTS</th><th colspan="3">MISSION EXECUTION</th></tr>
<tr><td colspan="6">PRODUCT DEVELOPMENT</td></tr>
<tr><td>Pre-Acquisition</td><td colspan="3">Acquisition</td><td>Sustainment</td><td rowspan="5">PERFORMANCE OUTCOMES OF PRODUCTS, PLATFORMS, & PEOPLE ACHIEVING MISSION EXECUTION</td></tr>
<tr><td>Project Initiation</td><td>Concept & Technology Development</td><td>System Development & Demonstration</td><td>Production & Deployment</td><td>Operations & Support</td></tr>
<tr><td>GOAL of Acquisitions Project</td><td colspan="4">  </td></tr>
<tr><td colspan="2">Preliminary Human Systems Assessment</td><td>Performance Systems Analysis</td><td>Development & Distribution of Performance Interventions for Initial Deployment</td><td>Development & Distribution of Performance Interventions for Sustainment</td><td>Level 3 Evaluation of Outcomes and ROI</td></tr>
<tr><td>Pre-Acquisition</td><td colspan="3">Acquisition</td><td>Sustainment</td></tr>
<tr><td colspan="6">PERFORMANCE SYSTEMS INTEGRATION</td></tr>
</table>

Major Systems Acquisitions Performance Systems Competencies	
Intent	The intent of the following description of competencies is to show the relationship of the tasks performed in each phase of the acquisition process to the performance outcomes and mission execution. This linkage will necessarily include the products and platforms of the acquisition process with the performance of the personnel who will use the products and platforms to execute the mission. The guiding concept of this model is that products and people work together in a synergistic and holistic manner from the pre-acquisition phase through the sustainment phase and beyond.

Major Systems Acquisitions Performance Systems Competencies (continued)	
Pre-Acquisition Phase	The following competencies exist in the Pre-Acquisition Phase: • Provide input to Executive Steering Committee • Promote HSI/HPT concept, benefits, and outcomes • Sell or sustain the idea of an integrated model and the importance of guiding the acquisition process beyond the delivery of a product or platform to mission execution • Monitor ILSP process and post progress reports to web-site • Prepare Request for Analysis to describe the goals and scope of the analysis project • Assist in development of SOWs and contracts to include HPT methods and outcomes • Review and respond to ORD and Maintenance Philosophy documents as they relate to manpower and training • Provide initial manpower and training assessments
Acquisition Phase	The following competencies exist in the Acquisition Phase: • Act as Line item-COTR / LEM to provide HSI/HPT technical oversight/feedback • Conduct final manpower and performance systems analysis • Monitor ILSP process and post progress reports to web-site • Provide direct development of performance interventions as necessary • Begin initial planning for performance/training system management to include acquisition of funding and resources
Sustainment Phase	The following competencies exist in the Sustainment phase. • Implement and maintain training system management plan • Implement and maintain performance system management plan • Conduct Level-3 evaluation of results • Initiate new performance-based contracts as revisions become necessary

Request for Analysis (RFA)

All analysis projects managed by CG-132 will follow the Request for Analysis (RFA) process. The RFA process filters out analysis requests not in alignment with the Commandant's Strategic Goals and Objectives. An RFA form can be submitted at any time

Submitting RFA Form

Program Managers and/or Acquisitions Project Managers will submit a completed RFA form (information section and questions 1-3) to CG-132 Division Chief, Steps 1-6 below should be accomplished within 5 work days of receipt of the RFA form.

Step	Who	Action
1	Program/Acquisitions Manager	Complete RFA form (available via the CG-132 web-site or Appendix B
2	Program/Acquisitions Manager	IF: PM/AM requires help in filling out the form THEN: Contact any member of CG-132 or the person assigned as the Logistics Element Manager (LEM)
3	Program/Acquisitions Manager	Email form to CG-132 Division Chief
4	CG-132 Div Chief	Review RFA form for completeness
5	CG-132Div Chief	Assign the pending RFA to a CG-132 representative
6	CG-132 RFA Process Monitor	Receive RFA form from Division Chief and assign a Tracking Number. Record pending RFA basic particulars in RFA spreadsheet and forward RFA form to designated CG-132 representative

CG-132 Assigns Projects

The Office of Training, Workforce Performance, and Development: Performance Analysis Division (CG-132) is responsible for tasking/assigning analyses for completion. RFA tasking can be within the CG training system (internal), or external tasking via a contract vehicle.

Internal to CG equates to:

- Performance Consulting Team
- Performance Technology Center (PTC) -- Training Center Yorktown, VA
- Performance Technology Staff -- Training Center Petaluma, CA

External to CG equates to:

- Commercial contracts

CG-132 activities for internal CG tasking will be completed within 5 work days of receipt from CG-132 Representative.

CG-132 activities for external CG tasking will be completed within 5 work days of receipt from CG-132 Representative.

CG-132 Representative activities (steps 4-6 below) for external CG tasking will be completed within 30 days.

<table>
<tr><th>Step</th><th>Who</th><th>Action</th></tr>
<tr><td>1</td><td>CG-132</td><td>Review RFA form for final completeness</td></tr>
<tr><td>2</td><td>CG-132</td><td>Determine tasking of RFA</td></tr>
<tr><td>3</td><td>CG-132 Rep</td><td>
<table>
<tr><th>If tasking is</th><th>Then</th></tr>
<tr><td>Internal</td><td>CG-132 notifies selected organization of new RFA tasking</td></tr>
<tr><td>External</td><td>CG-132 notifies CG-132 Rep to begin contracting initiative</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>CG-132 Rep</td><td>Develop Performance Work Statement/ SOW</td></tr>
<tr><td>5</td><td>CG-132 Rep</td><td>Convene a CG-132 PWS/SOW review meeting</td></tr>
<tr><td>6</td><td>CG-132 Rep</td><td>Pursue contracting venue</td></tr>
</table>

Provide Quality Assurance

Analyses are conducted per Section 3 of this SOP. The CG-132 Representative is assigned to the analysis for its duration and provides coordination with Program Managers.

Quality assurance will be carried out by administering the Client/Sponsor Project Feedback Form, Appendix E, and the Analysis Validation Requirements Checklist, Appendix F, as per the following table.

If analysis conducted by:	Then feedback and validation forms will be administered by:
CG-132 Representative	CG-132
PTC Analysts	PTC Analysis Branch Chief
TCP Analysis	Tpi Branch Chief
Contracted Personnel	CG-132 Representative
CG Auxiliary Personnel	CG-132 Representative

If analysis conducted by:	Then feedback and validation forms will be administered by::
CG-132 Representative	CG-132
PTC Analysts	PTC Analysis Branch Chief
TCP Analysis	Tpi Branch Chief
Contracted Personnel	CG-132 Representative
CG Auxiliary Personnel	CG-132 Representative

Provide Quality Assurance (continued)

Approval of the final product will be based on the logic, methodologies, and articulation of the analysis, not on the content or specific recommendations included. Misalignments between the products produced and CG standards will be brought to the attention of the analyst for correction (or additional analysis, as required) prior to delivery of the final report.

Analysis Source Briefs Final Report

CG-132 Rep will receive updates throughout the project. CG-132 Representative and Program/Acquisitions Manager will have opportunities to provide commentary on draft reports. The organization tasked with conducting the analysis will brief the final report to CG-132, Program/Acquisitions Manager, and other appropriate stakeholders. The CG-132 representative will be present at the briefing to address issues and to begin coordination of next steps. This briefing typically signifies the end of the analysis project.

CG-132 Develops Plan of Action & Milestones (POAM)

The CG-132 representative will assist the Program Manager responsible for implementing recommendations. The CG-132 representative will capture the actions required for implementation in a comprehensive POAM.

The following Step-Action table provides specific roles and responsibilities.

<table>
<tr><th>Step</th><th>Who</th><th>Action</th></tr>
<tr><td>1</td><td rowspan="3">CG-132 Representative</td><td>Draft POAM. An example of a completed POAM is included in Appendix G.</td></tr>
<tr><td>2</td><td rowspan="2">Route the draft POAM to all interested parties for concurrence (Client, Analysis Source)
<table>
<tr><th>IF</th><th>THEN</th></tr>
<tr><td>Follow-on analysis required</td><td>Coordinates additional RFAs</td></tr>
<tr><td>Non-Instructional intervention required</td><td>Program Manager is responsible for implementing non-instructional interventions (See non-instructional intervention SOP)</td></tr>
</table></td></tr>
<tr><td>3</td></tr>
<tr><td>4</td><td>CG-132 Representative</td><td>
<table>
<tr><th>IF</th><th>AND</th><th>THEN</th></tr>
<tr><td rowspan="4">Training development is required</td><td>E-4 Quals affected</td><td>Coordinate “A” school modifications</td></tr>
<tr><td>E-5 or E-6 Quals affected</td><td>Coordinate revisions for affected PQGs</td></tr>
<tr><td>Other tasks required</td><td>Identify “C” school requirements</td></tr>
<tr><td>Alternative development required</td><td>See Appendix H and the eLearning SOP</td></tr>
</table></td></tr>
<tr><td>5</td><td>CG-132 Representative</td><td>The CG-132 Representative will solicit feedback from Program/Acquisitions Manager regarding his/her satisfaction with the analysis process and it’s final product using the following tools:
Client Satisfaction Survey
Analysis Process Evaluation</td></tr>
</table>

These checklists are found in Appendix E and Appendix F respectively. The CG-132 Representative is responsible for evaluating Program Manager feedback and recommending changes to the analysis process, if appropriate.

The CG-132 Representative will also collect appropriate documents in electronic media and archive in the CG-132 library for later use and reference.

SECTION III: Authorized Analysis Methodologies

Introduction	This section provides basic methodologies for conducting analyses. Variations from these must be approved by CG-1321. See Appendix D.
Purpose	The purpose of each methodology is more fully explained in the subsections.
Target Audience	• Headquarters Program Managers • Coast Guard Performance Analysts (Performance Consultants and HPT Practitioners) • Coast Guard Training System Managers • Commercial Contractors
Background	There are numerous types of analysis but this section attempts to identify the most common types that will be conducted in support of Coast Guard operations. The analysis types and levels addressed in this section are: • Strategic Needs Assessment (SNA) • Front End Analysis (FEA) • Training Requirement Analysis (TRA) • Job Task Analysis (JTA) • Cost Benefit Analyses (CBA) • Performance System Analysis (PSA) • Occupational Analysis (OA) Regardless of what type of analysis is being conducted, the following HPT principles must be followed: • Systems approach • Analysis is only conducted based on validated needs • All analysis is data driven • All solutions are supported by findings

3.1 Strategic Needs Assessment

Introduction

This section defines a strategic needs assessment (SNA) and provides one methodology for conducting the analysis and preparing a SNA report. A SNA is the systematic and data driven process designed to answer the question, "How can we help the client achieve the organization's business goals more effectively?" This type of analysis focuses on:

- Articulating desired outcomes based on given organizational or program capstone documents such as mission, vision, most probable scenarios, intelligence and criteria
- Comparing desired outcomes to actuals to determine gaps at the organization, unit and/or individual levels.
- Identifying root causes for each gap and recommending potential solutions for closing the gap
- Analyzing each gap as to its scope, magnitude and priority for resolution based on the cost to close the gap as compared to the cost of ignoring it
- Implementing the selected solutions
- Evaluating results

Purpose

The purpose of a SNA is to examine the external and internal factors that affect performance within the context of an organization's business strategy and identifies the gaps between the current and desired conditions. Closing the gaps by the most cost effective and efficient solutions is critical for the organizations long-term success.

A SNA is most effective in the following situations:

- When performance improvement needs are linked to the business strategy of the Coast Guard
- When the Coast Guard is undertaking long-term performance or organizational change initiatives
- When the process that does not add value to the Coast Guard must be identified

Performing a SNA offers many benefits to the Coast Guard, for example:

- Develop a long-term solution to existing performance problems or new performance needs
- Solve problems that affect core business process, such as product development order processing, or service delivery

The main drawbacks to performing a SNA are as follows:

- It can be time-intensive
- It often requires participation by many people in various work groups
- It might be costly
- Shifting the focus from individual client's needs to organizational needs is not easy; it requires alignment between the analyst and the client(s) who is/are responsible for the business result(s)

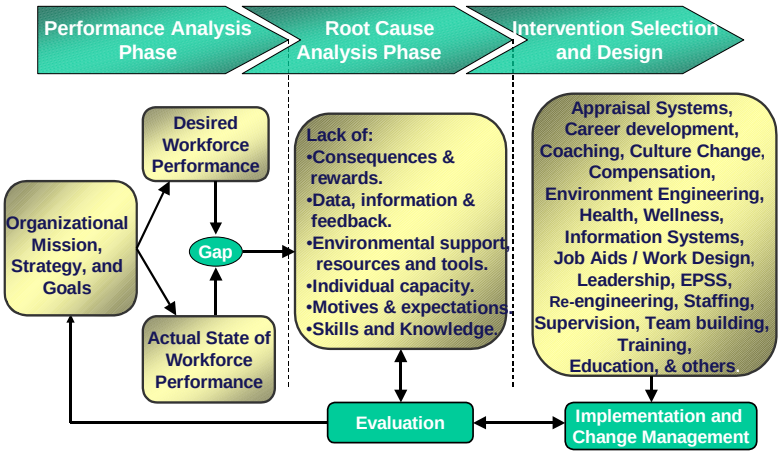
Target Audience

- Coast Guard Performance Analysts (Performance Consultants and HPT Practitioners)
- Coast Guard Training System Managers
- Commercial Contractors
- Headquarters Program Managers

Background

Due to the changes in our world, the Coast Guard's world of work must change to keep pace with those changes. Decisions will need to be made to meet these new and changing missions and those decisions should be made based on what will be the most efficient and effective use of our limited resources. Therefore, the Coast Guard uses a Human Performance Technology (HPT) approach to solve performance problems or realize opportunities to meet our business goals.

Human Performance Technology Model



Remember, in a SNA the analyst has the responsibility to ensure that the solutions support the Coast Guard's desired future direction.

Strategic Needs Assessment Phases

For Coast Guard training purposes, a typical SNA will include the following phases:

- Phase 1: Performance Analysis
- Phase 2: Root Cause Analysis
- Phase 3: Intervention Selection
- Phase 4: Implementation
- Phase 5: Evaluation

NOTE: Although these phases appear linear, in actuality, there are no precise boundaries between them. As a SNA project progresses, the data and results from one phase may cause modifications in planned activities for the next phase.

It is the responsibility of the analysts to routinely check for alignment on the project and keep the client informed of all modifications to the proposed project schedule, as well as any changes to the planned activities in each phase.

Phase 1: Performance Analysis

The purpose of this phase is to work with the client to:

- Identify the problem or opportunity
- Ensure alignment with organizational goals, objectives and missions
- Identify desired and actual performance
- Define "the gap(s)" between desired and actual performance in measurable terms

The steps in the Performance Analysis phase of the SNA process are:

Step:	Who:	:Action
1	Analyst & client responsible for the Business Result and the client requesting the SNA	Aligns with client(s). See Appendix A and Appendix I. **NOTE:** The client responsible for the business result may or may not be the same as the client requesting the analysis. It is essential that the person responsible for the business result is also involved in the process since both the analyst and this client requesting the analysis will have responsibility to make sure that the suggested solution(s) will support the business objectives for the Coast Guard.
2	Analyst	Develops data collection plan. See Appendix J and Appendix K.
3	Analyst	Collects data.
4	Analyst	Conducts gap analysis: • Identifies optimal performance • Identifies actual performance • Determines gaps between optimals and actuals
5	Analyst	Prepares Performance Analysis report. See Appendix L.
6	Analyst & Client(s)	Briefs report findings and recommendations to client(s).
7	Analyst & Client(s)	Decide if analysis needs to continue to the next phase.

Phase 2: Root Cause Analysis

The purpose of this phase is to work with the client to:

- Determine root causes for the gap(s) identified in the performance analysis phase
- Classify root causes as a lack of:
  - Skills and Knowledge
  - Motivation & Self Concept
  - Performance Capacity
  - Expectations & Feedback
  - Tools & Processes
  - Rewards, Recognition & Incentives

The steps in the Root Cause Analysis phase of the SNA process are:

Step:	Who:	Action:
1	Analyst	Reviews Performance Analysis report.
2	Analyst	Develops data collection plan. See Appendix M. In the design of the data collection plan, be sure to continue to think strategically. The analyst may want to involve the client so that they better understand the process and methodologies to be used.
3	Analyst	Collects data. See Appendix M.
4	Analyst	Classifies Root Causes. See Appendix M.
5	Analyst	Prepares Root Cause Analysis report. See Appendix N.
6	Analyst & Client	Briefs report findings and recommendations to client.
7	Analyst & Client(s)	Decide if analysis needs to continue to the next phase.

Phase 3: Intervention Selection and Design

The purpose of this phase is to work with the client to:

- Develop cost a effective and efficient interventions
- Prioritize interventions

The steps in the Intervention Selection and Design phase of the SNA process are:

Step:	Who:	Action:
1	Analyst	Review Root Cause Analysis report.
2	Analyst	Develops interventions list and links interventions to Root Causes. See Appendix O. **NOTE:** if there are more than a few Root Causes (3-7); meet with the client and agree on which interventions are more likely to be implemented due to the constraints of the organization. Prioritize the list and focus the remainder of the steps in this action table. For example if there are lots of root causes and a number of possible interventions for each, only focus on those that will best address the business goals for the performance gap you are attempting to close.
3	Analyst	Rank orders each intervention based on (Rationale, Value, Integration, and Acceptability). See Appendix P.
4	Analyst	Selects at least one intervention for each performance gap identified.
5	Analyst	Prepares Intervention Selection report. See Appendix Q.
6	Analyst & Client	Brief report to client.
7	Analyst, Client(s) and Implementation Stakeholders	Decide if analysis needs to continue to the next phase. If yes, hand-off to the correct organization for the Implementation Phase. CG-132 will assist in this process.

Phase 4: Implementation

The purpose of this phase is for the analyst to work with the client and CG-1321 to:

- Develop a comprehensive Plan of Action and Milestones (POA&M) to implement the interventions

The steps in the Implementation phase of the SNA process are:

<table>
<tr><th>Step:</th><th>Who:</th><th>Action</th></tr>
<tr><td>1</td><td>CG-1321</td><td>Drafts POA&M. An example of a completed POA&M is included in Appendix G.</td></tr>
<tr><td>2</td><td>CG-1321</td><td>Routes draft POA&M to all interested parties for concurrence (Client, Analysis Source)</td></tr>
<tr><td>3</td><td>CG-1321</td><td>
<table>
<tr><th>IF:</th><th>THEN:</th></tr>
<tr><td>Follow-on analysis required</td><td>Coordinates additional RFA’s.</td></tr>
<tr><td>Non-Instructional intervention required</td><td>Program Managers are responsible for implementing non-instructional interventions.</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>CG-1321</td><td>
<table>
<tr><th>IF:</th><th>AND:</th><th>THEN:</th></tr>
<tr><td rowspan="5">Training development is required</td><td>E2 or E3 Quals affected</td><td>Coordinates PME Qual changes & Enlisted Accession training.</td></tr>
<tr><td>E-4 Quals affected</td><td>Coordinates “A” school modifications</td></tr>
<tr><td>E-5 or E-6 Quals affected</td><td>Coordinates revisions for affected PQGs.</td></tr>
<tr><td>Other tasks required</td><td>Identifies required “C” Schools – see Resident Instruction SOP.</td></tr>
<tr><td>Alternative Development required</td><td>See Appendix H and the Advanced Distributed Learning SOP.</td></tr>
</table>
</td></tr>
</table>

Phase 5: Evaluation

The purpose of this phase is to work with the client to:

- Ensure recommendations are closing performance gaps

The steps in the Evaluation phase of the SNA process are:

Step:	Who:	Action:
1	CG-1322	Develops evaluation plan.
2	CG-1322	Implements evaluation plan.

The Performance Analysis Branch strives to improve the Analysis SOP on a continual basis. Please email questions and suggestions on how to improve it to TCYPF-PTCAnalysis@uscg.mil.

3.2 Front End Analysis (Introduction to two types)

Introduction

Front end analysis (FEA) is a systematic process for:

- Describing new performance
- Determining inhibitors to competent performance
- Recommending the skills and knowledge (S/K), environmental (ENV), motivational/incentive (M/I) and assignment and selection (A/S) interventions that must be put in place to help Coast Guard workers achieve optimum performance

The Coast Guard uses SABA's Peak Performance System © FEA methodology to define jobs (**NOTE:** henceforth, any reference to "FEA" specifically means SABA's Peak Performance System © FEA methodology – and no other):

- Associated with new acquisitions (i.e., ships, aircraft, and equipment procured to accomplish Coast Guard missions)
- That has never had an FEA

The Coast Guard also uses FEA methodology to determine the cause of performance problems and to recommend interventions that will improve deficient performance.

Purpose

This SOP provides guidelines for conducting FEAs.

Target Audience for FEA

- Headquarters Program Managers
- Coast Guard Performance Analysts (Performance Consultants and HPT Practitioners)
- Coast Guard Training System Managers
- Commercial Contractors

Additionally, FEA data is used by a variety of entities. These include Acquisition Managers, Program Managers, Rating Force Master Chiefs, Training Managers (CG-132), contractors, training center course designers/ developers.

Background

Why does the Coast Guard use FEA methodology?

How does this methodology fit into Human Performance Technology (HPT) methodologies - the approach the CG uses to manage its Training System?

How does this methodology fit into the Instructional Systems Design (ISD) model - the approach the Coast Guard uses to manage its training?

Why use FEA Methodology?

- It focuses on the performer and his/her performance in the field
- It places more importance on aligning a project right from the start
- It provides job aids that contain detailed prescriptive and standardized instructions for how to conduct each aspect of an FEA as part of the FEA training. The job aids ensure the effort's outputs are replicable no matter who conducts the analysis
- It focuses on alignment with associated CG business goals and ensures interventions the FEA recommends are tied back to helping performers achieve the goals (i.e., missions)
- It defines what an Accomplished Performer (AP) is - "**best of the best**" - and ties project success to early identification and observations/interviews of accomplished performers to gather data
- It places emphasis on selecting the type of FEA most applicable to a particular project
- Its outputs (particularly for Skills/Knowledge (S/K) recommendations) are at a task and task sub-step level of description, an absolutely essential level for designing and developing Electronic Performance Support Systems (EPSSs), job aids, training, and e-learning blended solutions
- Its outputs are useful for assignment & selection (A/S) issues, work design, policy and technical manual updates
- It can be used by the CG to make "train/no train" decisions.
- It emphasizes job aid development (performance supports that store information in the job aid) vice training development (intervention that stores information in the student's long term memory)

How Does FEA Fit into HPT Methodologies?

FEA is the first phase of a three-phase process called the Peak Performance System © (PPS). PPS & FEA are an HPT approach that defines a process for analyzing, designing, developing, implementing, and evaluating projects to most cost-effectively influence human performance that is of value to the CG's basic business goals (i.e., missions).

As an HPT approach, it demands that the analyst consider all influences that affect performance. The graphic below shows the four categories that impact performance.

The analysis effort is focused on performance at the task and task sub-step level, and as such, is very useful for designing subsequent intervention recommendations. Its focus on observing and interviewing APs results in the capture of specific "tricks of the trade" that can, at a later date, be incorporated into job aids. As a systematic model, it defines a rigorous and standardized approach to gathering and analyzing data. When the problem is poor performance, it provides a rigorous and standardized method for performing "gap analysis" at the task level.

It also applies an equally rigorous and standardized approach to converting FEA data interventions for improving the worker's performance into in the following root causes categories:

- Skill &Knowledge (S/K)
- Environmental (ENV)
- Motivation & Incentive (M/I)
- Assignment & Selection (A/S)

How Does FEA Fit into the ISD Model?	FEA is one of the critical efforts of the ISD's first phase, analysis. In following the Instructional Systems Development (ISD) model, the CG is committing to never design or develop training unless an analysis has first been conducted to determine if training is indeed the solution to a performance problem.
FEA Model is Helpful to Train Designers and Developers	FEA methodology is part of a larger Peak Performance System © model that is particularly useful to CG Training Centers because it provides Coast Guard staff and contractors with all they need to design and develop efficient and effective job aids and training.
Requirements for Conducting an FEA	The requirements for conducting an FEA are: • Training in Peak Performance System © Phase 1 (FEA) provided by certified trainer • FEA job aids and worksheets acquired as instructional materials during training • Strict adherence to the FEA job aids and completion of all the worksheets • Alignment and FEA Report formats and FEA Checklist (samples included at end of this SOP)
Two Types of FEAs	The FEA process consists of two types of FEAs: 1. New Performance Planning (NPP) 2. Diagnostic

The Performance Analysis Branch strives to improve the Analysis SOP on a continual basis. Please email questions and suggestions on how to improve it to TCYPF-PTCAnalysis@uscg.mil.

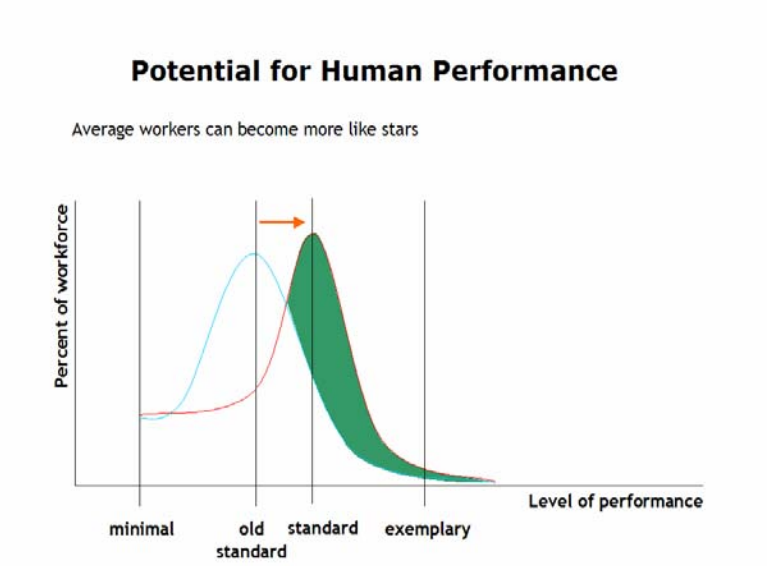
3.2.1 NPP-FEA

NPP FEA	NPP FEA is used to analyze **new starts** - a new server such as the Windows 03 roll-out, different equipment and performance expectations for the Coastal Patrol Boat, or new policy such as using the Incident Command System (ICS) for responding to "all risks/all hazards." NPP is also used to analyze (describe) a job that has never had an FEA.
Diagnostic FEA	Diagnostic FEA is used to analyze why a group of people aren't performing as expected (e.g., CASREPS indicate boilers are being replaced too frequently). Diagnostic FEA is the appropriate FEA method to use when there is documented evidence or a perception that workers are not performing as required.
Parts of an FEA Effort	Whether NPP or diagnostic, all FEAs have the same components: • Alignment Meeting • Follow-up Alignment Report for Concurrent Clearance • AP Selection • NPP/Diagnostic FEA Data Collection Plan • Data Collection Effort (on-site visits, Group Systems Workshops, online surveys, etc.) • Data Analysis to Produce S/K. ENV, M/I, A/S Interventions • FEA Draft Report • FEA Out brief • Follow-up Action Plan
Blended Approach	A large analysis project (i.e., the 87' Coastal Patrol Boat) may call for a "blended" approach, involving several FEAs. Some of those FEAs may be NPP, some may be Diagnostic. Decisions regarding which type of FEA (NPP or Diagnostic) to conduct are first addressed at the initial alignment meeting.

Accomplished Performers (APs)

Accomplished Performers are a critical component of FEA efforts. An AP is a person whose skill set and/or performance level serves as an example of the optimal or desired state. APs are exemplars, the people who have figured out how to do a task or job most effectively and efficiently. Their inclusion in this model is critical because it means analysts can observe and interview the "best of the best."

From those observations, designers can subsequently incorporate the AP's "tricks of the trade" into the job aids they develop. What that means to Coast Guard performance is this: when middle-of-the-road performers use such job aids, their performance automatically moves closer to optimal performance with the green area of the graph below representing the organization-wide improved performance:



FEA Process Explained

The FEA training in conjunction with the Job Aids, describe the process to use for conducting an FEA. The table below provides supplemental information and is intended to be in addition to the steps and tasks in the Job Aids. In the case of conflict, the FEA Job Aids are the preeminent source and take precedence.

What:	Why:	When:	Who:
Alignment Meeting	To explore the request for an analysis in more detail and to obtain "alignment" on key issues: project scope, type of FEA, AP selection, funding, who will conduct the analysis, business goal affected, etc. **NOTE:** Depending on the project's complexity and issues, you may find it necessary to refine the alignment with your client several times.	The first step in an analysis project; the first thing you do (following Job Aid 3)	A decision-maker from the client's organization, key stakeholders, CG-132 rep, project manager and analysts. The lead analyst will strictly follow Job Aid 3 "Project Alignment."
Follow-up Alignment Report	Serves as agreement for and formal documentation of how the project will be conducted for all parties to be satisfied with outcomes; similar to a contractual agreement.	Immediately following alignment meeting. Since the Alignment Report must be cleared through all attendees, it may take a week or more to finalize the report.	Project analysts produce the report and send it forward for electronic concurrent clearance. Analysts finalize the report based on feedback and send out a final copy when all issues are resolved and client gives word to go forward. **NOTE:** There is no formal project until alignment is reached.
AP Selection	This effort, usually concurrent with finalizing the alignment report, is necessary to determine the number of site visits and/or who will need to attend Group Systems Workshops or be observed/ interviewed/surveyed.	Concurrent with finalizing alignment meeting report/ agreement	Client provides list of APs; analyst may need to provide consulting to ensure list contains APs vice subject matter experts.

What:	Why:	When:	Who:
NPP or Diagnostic Data Collection Plan	This effort is also concurrent with finalizing the alignment report and is necessary to identify the sites to be visited and people interviewed or the number and demographic samples for APs who need to attend a Group Systems Workshop	Concurrent with finalizing alignment meeting report/ agreements.	Project analysts, with input from the client, draft a Data Collection Plan
Data Collection Effort	To gather the data, using the FEA job aids, needed to make findings and recommendations.	As soon as the alignment phase is completed.	Project analysts, APs, subject matter experts
Data Analysis Effort	To create the findings and recommendations of the FEA by using the job aids and algorithms from FEA training.	As soon as the data collection effort is over & data exists on major accomplishments (MAs) and their tasks	Project analysts **NOTE:** At this point, Project Analysts may use a Recommendations Conference (RC) to determine "doable" interventions. The RC allows clients to help shape recommendations. The output of a RC is "pre-buy-in" from the client.
FEA Report	To document the FEA project for the CG and client.	As soon as data analysis is complete	Project analysts and Project Manager
FEA Out brief	To expand on the FEA report and ensure the client understands the findings and recommendations and the need to deploy interventions systematically.	As soon after the final report is completed as the out brief can be coordinated	Project analysts provide out brief, project manager attends, clients, CG-132 rep also attend.
Follow-up Action Plan	To ensure the recommendations are implemented and performance is changed. The FEA effort is only as good as the recommendations implemented.	Sometimes this event can be worked into the out brief; most often, it is worked out as soon as possible after the out brief	CG-132 rep and client; if PTC is tapped to design and develop interventions, they may also be part of the action plan. Other TRACENs reps may also be tapped to design and develop specific interventions.

Considerations for conducting an FEA

- Ensure people who will conduct the FEA have received SABA Peak Performance System © Phase 1 (FEA) training from a certified instructor
- Ensure analysts follow the job aids and use the summary sheets without any deviations for each component of the FEA effort
- Ensure analysts use the sample reports in this SOP as templates for their alignment and FEA reports
- Throughout the project's lifecycle, use the FEA Checklist found at the end of this SOP for quality assurance purposes

How to Conduct a Project Alignment Meeting

The steps involved in project alignment are contained in FEA Job Aid 3 "Project Alignment." They include:

- Task A: Document Request for Possible Project
- Task B: Prepare for Alignment Meeting.
- Task C: Conduct Alignment Meeting.
- Task D: Document Results of Alignment
- Coordinate with the client to identify APs
- Work up a project cost estimate and timelines
- Prepare a draft alignment report
- Provide to Project Manager for Review
- Task E: Prepare Alignment Report
- Provide Alignment Report to client, managers & stakeholders electronically

NOTE 1: Identifying subject matter experts (SMEs) - people with job knowledge and expertise - is also an important component of alignment. SMEs are very helpful in developing an initial major accomplishment (MAs) and tasks list. Accomplished Performers (APs) - the "**best of the best"** currently performing the job -- will validate that data later in the analysis effort.

NOTE 2: You must use the Project Alignment job aid provided in FEA Training. Do NOT deviate from the questions the job aid asks you to present to the client. Make sure you answer all questions and gather all material the job aid asks you to. The materials include an Appendix 3: Outline for alignment meeting that is very helpful in preparing for and conducting an alignment meeting.

How to Conduct a Project Alignment Meeting (continued)

The four tasks between Task D and E are not found in the FEA materials, but are required for CG FEAs.

It may take some time for the client to identify APs. For example, a Boarding Officer AP might be a person who has conducted the most and highest quality of boarding (e.g., as measured by convictions, fines imposed and/or feedback from Legal). You may have to work with the client to help differentiate between subject matter experts and accomplished performers. It is critical to the FEA effort that you identify genuine APs. You also need to work up a project cost estimate and timelines since these are crucial pieces of alignment. Review from the project manager ensures the project is on the right track for ultimate success.

There are some "do not's" associated with project alignment.

DO NOT:

- Begin the project without the Job Aid 3 “Project Alignment” and FEA phase 1 training
- Take on the project if the client is not willing to fund or cannot produce funding in a timely manner
- Agree to the project if the client insists that training is the only answer he or she will consider
- Go further with the project if the client is unable to identify the CG business goal the project will serve
- Accept the project if APs cannot be identified (see note below for new equipment/jobs)

NOTE: Sometimes the Coast Guard has no APs because the equipment or job is totally new to the organization. In those situations, APs may be identified from another organization, or SMEs, factory technicians or other experts may be utilized to determine the major accomplishments and tasks that make up a job.

How to Conduct an NPP FEA

The steps involved in conducting an NPP FEA are:

- Task A: Prepare to Conduct NPP FEA
- Task B: Determine Major Accomplishments (MAs)
- Task C: Collect Data on MAs
- Task D: Produce Task List and Preliminary Data for each MA.
- Task E: Obtain Additional Data on Tasks.
- Task F: Prioritize the Performance.
- Use Job Aid 15, Planning the Design of Interventions, to determine recommendations
- Consider if a recommendations conference (RC) with client is necessary to determine if recommendations are doable

How to Conduct an NPP FEA (continued)

- Prepare FEA Report (use sample at link as template for reports)
- Submit FEA Report for internal review
- Task G: Out brief Report to Client

The four tasks between Task F and G are not found in the FEA materials, but are required for CG FEAs. Job Aid 15 is very helpful in outlining the different recommendations you may need to consider. However, considering whether to conduct a Recommendations Conference with the client may eliminate the need to consult with several specialists. If the client cannot afford certain recommendations or foresees too many impediments to implement them, you will need to work with the client on "doable" solutions. You should not prepare your draft FEA Report until you have worked out a system of "doable" recommendations that will impact performance positively. Internal review will ensure the report is on track.

If a Group Systems suite is available, you should consider coordinating with the Performance Technology Center to obtain the FEA applications they have worked up for that equipment.

There are some "do's" associated with NPP FEA.

DO ENSURE:

- You have Job Aid 6 “New Performance Planning FEA” and FEA Phase 1 training before beginning
- MAs are expressed as nouns or noun phrases
- Tasks are expressed as action verbs with objects
- Analysts use job aids to interview APs
- Analysts fill out and retain summary sheets
- All questions found in the job aids are adequately answered
- FEA final reports "look-and-feel" like the NPP reports found at the hyperlinks in this SOP
- All questions and concerns the client may have are considered prior to the out brief
- Task data are sorted through relevant algorithms to properly identify what tasks should be job aided (with introductory or extensive training) and which tasks should be trained to memory

NOTE: The FEA methodology includes algorithms for making train/no train decisions and for determining under what circumstances job-aided tasks require introductory or extensive training. To ensure FEA outcomes are standardized, **it is critical that those conducting FEAs for the Coast Guard use the algorithms contained in the FEA materials to make training and job aid recommendations.**

FEA methodology utilizes a formula comprised of the following task data:

- Speed
- Frequency
- Complexity
- Consequences of error
- Probability of change
- Barriers to job aiding

3.2.2 Diagnostic FEA

How to Conduct a Diagnostic FEA	The steps involved in Diagnostic FEA are: • Task A: Prepare for Diagnostic FEA. • Task B: Verify/Define General Problem • Task C: Define Tasks of Deficient MAs • Task D: Determine the Root Performance Deficiency (RPD) • Task E: Pose Cause Hypotheses • Task F: Plan Data Collection Methods • Task G: Collect Evidence Bearing on Hypotheses • Task H: Decide Probable Cause • Task I: Specify Solution & Make Recommendations • Prepare FEA Report • Submit report for internal review • Task J: Out brief Report to Client The two tasks between Tasks I and J are not included in the FEA materials. Experience has shown the project will be more successful if you adhere to these steps.
References	References specific to FEA and recommendations for additional reading are found at the end of the SOP.

References

Gilbert, T. F. Human Competence: Engineering Worthy Performance. New York: McGraw-Hill, 1978.

Harless, J. H. An Ounce of Analysis is Worth a Pound of Objectives. Georgia: Harless Performance Guild, 1975.

Mager, Robert f. What Every Manager Should Know About Training. California: Lake Publishing Company, 1992.

Front End Analysis Quality Assurance Checklist

FEA Name: Date:

#	Item	Meets	Does Not Meet	Comments
1	The report contains an Executive Summary with no jargon.			
2	The study matches the scope as described in the alignment section.			
3	The population targeted is relevant to the scope and intent of this study.			
4	The findings are related to human performance influences and/or deficiencies.			
5	The human performance depicted in the findings section is described in terms of Major Accomplishments and tasks at a level that is relevant and useful to the scope.			
6	The findings are supported by examples, facts, and/or data.			
7	The recommendations are fully supported by the findings.			
8	The recommendations address the issues identified in the scope of the study.			
9	The analysis followed the appropriate FEA job aids without deviation.			
10	The report is understandable, i.e., context and background is established to provide meaning and cohesiveness.			
11	FEA Summary Sheets are included. References, documentation and technical publications are described in detail.			
12	Surveys, questionnaires and other data gathering instruments appear valid and the results (including FEA Summary Sheets) are included as appendices for review.			

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3.3 Training Requirements Analysis (TRA)

Introduction	In Section I of this SOP, we described the methodological underpinnings of Human Performance Technology and the rationale for examining all of the factors that influence job site performance and mission execution. These factors are always valid considerations and should be the premise from which we start all projects. However, there are some situations where the immediate goals of the client (Program Sponsor) do not require a careful examination of all of the factors that influence the work, the worker, and the workplace and would thus result in an unnecessary waste of time and money. In cases such as these, it is permissible to restrict the scope of the analysis and conduct a Training Requirements Analysis.
Why Conduct a Training Requirements Analysis?	A Training Requirements Analysis is a process of examining current work-site performance by developing a comprehensive task inventory and comparing the results to one of the following choices: (1) an existing curriculum of a currently offered Coast Guard course, (2) an off-the-shelf course form another government source (GOTS), (3) an of-the-shelf course of an existing commercial source (COTS). Other possible uses of a TRA are to use the task inventory to update and revise existing curriculum, or to convert existing curriculum to an alternate delivery modality.
Purpose	The purpose of a Training Requirements Analysis is to narrow the scope of the analysis project to give the Program Manager (or other client) a clear idea of what the performance needs are and what training intervention is best suited to meet those needs in a cost effective manner.
Cautionary Note	The decision to restrict the analysis to only the Skill & Knowledge components of the HPT model should only be made after careful consideration has been given to the situation and it is absolutely clear that the client's needs would be best served by limiting the scope of the analysis project to only the requirements that can be resolved by training.
Key Elements of a TRA	A TRA is less complex than other types of analysis. It consists of only three key elements: • A comprehensive job-task inventory of existing work-site performance • A comparison of existing CG, COTS, or GOTS curriculum to align the curriculum performance objectives with the inventory of performance tasks • A Cost comparison of competing delivery sources to determine which delivery source best matches the needs of the client

Conducting the TRA

How to Conduct a TRA

The process of conducting a TRA is similar in scope to all of the other analyses contained in this SOP. The following high-level elements make up the entire TRA analysis:

- Step 1: Review the requirements contained in the Request for Analysis (RFA)
- Step 2:Conduct an alignment with the client
- Step 3: Prepare a Project Management Plan as the governing project document
- Step 4: Review existing documentation
- Step 5: Conduct job-task inventory
- Step 6: Compare existing curricula with the job-task inventory to determine best match
- Step 7: Conduct cost comparison of each potential delivery source
- Step 8: Write report of findings and recommendations

Step 1: RFA

The first step in any analysis project is for CG-132 to receive a Request for Analysis from the originating office. The RFA is the document that clearly defines the clients needs and sets the direction for the analysis. Appendix B contains the Request for Analysis Form that will be used by CG-132 to determine the scope of the project.

After the RFA form has been thoroughly analyzed and discussed by the CG-132 staff, the Analysis Selection Guide found in Appendix S will be used to match the needs of the client with the type of analysis to be conducted.

Step 2: Alignment

The alignment process to be followed for the TRA is identical to the alignment process for the New Performance Planning FEA and Diagnostic FEA and can be found in the Optimizing Human Performance Handbook (Dialogue 2, Job Aid 3, and RFA Scoping & Tasking Forms 4). Appendix C contains the RFA Scoping and Tasking Form.

The following Alignment process actions are repeated here to ensure clarity:

STEP	ACTION
Task A	Document a Request is covered in Step 1 of this table
Task B	Prepare for Alignment Meeting
Task C	Conduct the Alignment Meeting
Task D	Document results of the Alignment Meeting

Step 3: Project Management Plan

The Project Management Plan is the controlling document for the project and describes all aspects of the performance to be accomplished, milestones, and deliverables.

The following guidelines are provided to ensure that every element will be present in each comprehensive Project Management Plan:

- Introduction
    - Project Background
    - Purpose of the Plan
    - Organization of the Plan
- Project Objectives, Milestones, and Deliverables
    - Objectives
    - Milestones
    - Deliverables
- Project Assumptions and Constraints
    - Assumptions
    - Constraints
- Technical Approach
    - Methods and Approach
    - Roles and Responsibilities
    - Government Furnished Information/Access/Equipment
- Project Management Activities
    - Management Plan
    - Project Performance
    - Deliverables-Follow-up review Plan
    - Project Reporting Requirements and schedule
    - Project Communication Plan
    - Revisions and Approval Plan
- Project Timeline

Step 4: Review Extant Data

As part of the Government Furnished Information, the analysis team will receive and review as much existing documentation as is pertinent to the project goals and objectives. From this existing documentation, they will prepare a preliminary task list that can be validated during the interview process.

Step 5: Job Task Inventory

The job-task inventory is an analytic breakdown of the work structure of a specific job that creates an inventory of jobs, tasks, and procedures (steps). For the purposes of the Training Requirements Analysis, the inventory to this level of specificity produces all of the necessary information to establish exactly what information will constitute the outline of training curricula.

The following steps are typically followed when conducting a breakdown of the job and tasks to create an inventory of tasks:

- Create a preliminary inventory of tasks from existing documentation such as previous FEA, existing curriculum, doctrine, or common practice
- Use this preliminary data as the basis to conduct interviews or survey to validate the information or update currency
- Use new data to create a final description of the job-tasks that are currently being performed by accomplished professionals at the job site

Section 3.4 of this SOP contains all of the guidelines necessary to conduct a job task analysis.

Step 6: Existing Curricula Review

Each existing course regardless of its source is made up of lessons that pertain directly to teaching the skills and knowledge necessary to perform the job to exemplary standards. It is important to review the curriculum outline and lesson plan content to determine how the course and lesson objectives match up with the job-task inventory.

Typically, the outcome of this analysis will be a comparison matrix of job-tasks and lesson learning objectives that display graphically where the two match up and where they don't match up. This comparison matrix will clearly identify which existing course most closely meets the needs of the client stakeholder.

Step 7: Cost Comparison Analysis

Conducting the curricula review of all of the competing courses is an important step in completing a Training Requirements Analysis; but it is only one of the decision factors that must be considered. Comparison of the costs for each possible choice will provide important information that will lead to the primary recommendation of the report.

Section 3.5 of this SOP contains all of the guidelines necessary to conduct the all-important cost comparison analysis.

Step 8: Write Report

The TRA report is the culmination of all of the data gathering and analytic efforts that preceded it. The following elements are typically contained in the final report:

- Executive Summary
    - Synopsis
    - Goals
    - Key Findings
    - Recommendations
    - Costs
- Project Overview
    - RFA review
    - Deliverables
    - Assumptions
    - Constraints
- Review of Alignment
    - Roles and Responsibilities of all primary stakeholders
    - Funding agreements
    - Analysis type and methodology
    - Documentation provided and reviewed
    - Selection of the Accomplished Performers & SMEs
    - Site visitation schedule
- Job-Task Inventory
    - Definition of Accomplishments
    - Definition of Tasks
    - Definition of Steps
    - Complete job-task inventory
        - Mission
        - Job
        - Job Accomplishments
        - Major Accomplishments
        - Tasks
        - Steps
- Findings and Recommendations
- Plan for Future Actions
- Appendices

References

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Jonassen, D.H., et al, (1989). *Handbook of Task Analysis Procedures*, Praeger Publications, Westport, CT,

Swanson, R.A. and Gradous, D.B. (1988). Forecasting Financial Benefits of Human Resource Development, Jossey-Bass Publishers, San Francisco, CA.

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3.4 Job Task Analysis (JTA)

Introduction

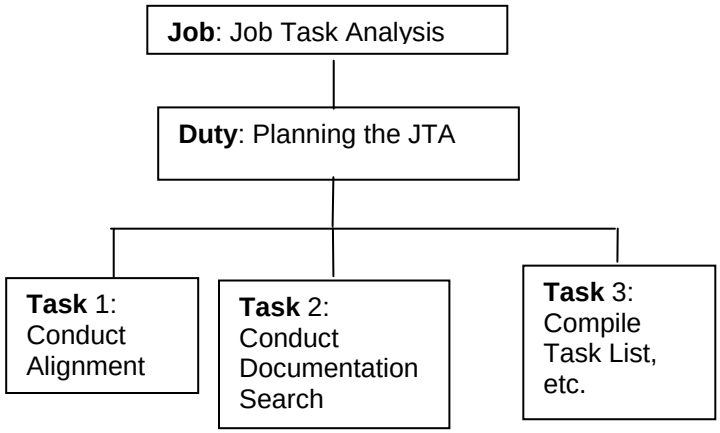
A Job Task Analysis (JTA) is a type of analysis that has been traditionally used to develop vocational instruction. In the Coast Guard, this tool is used when job performance is satisfactory but a validation of course curriculum is needed.

A JTA is a process used to break a job into duties and tasks.

- **Duties** are a job's major divisions of work. Each duty is made up of a group of tasks related to that duty.
- **Task** is a series of actions leading to a meaningful outcome. A task can be performed independently of other tasks and has a definite beginning and an end.

NOTE: Task detailing (the collection of step level data), also known as a Task Analysis (TA), may be required if analysis reveals that actual task performance is different than existing curriculum. Details are contained in the Coast Guard Human Performance Technology (HPT) Instructional System Design (ISD) Handbook maintained on the PTC web-site.

For example, the job, job task analysis, could be broken down into the following duties: planning the analysis, conducting JTA, analyzing results and out briefing recommendations. Each duty could then be further broken down into the group of related tasks that make up that duty. For example, the duty, Planning the JTA, could be further broken down into the tasks conduct alignment, conduct documentation search, and compile task list, etc.



The JTA process provides a methodology for:

- Asking survey respondents if they do or do not perform specific tasks.
- Providing numerical values for survey respondents to rate the difficulty, importance and frequency for each task.
- Sorting the resulting survey data into performance intervention recommendations, i.e., *Train to Memory, Do Not Train, Job Aid, Job-Aid with Training*, tasks best trained on-the-job (OJT).

Purpose

This section of the SOP provides guidelines for conducting JTAs using a standardized methodology, tools and format.

The primary objective of a job task analysis is to gather information about the scope, responsibilities, and tasks for a particular job or function. The analyst can use this information to help people within an organization develop a clearer picture of what a job entails. It also helps supervisors and managers establish criteria for job performance and thus provide a foundation for performance management and training.

Target Audience for Conducting JTA

- Coast Guard Performance Analysts (Performance Consultants and HPT Practitioners)
- Coast Guard Training System Managers
- Commercial Contractors
- Headquarters Program Managers

Background

The Coast Guard conducts JTAs so that it can use the resulting data to make efficient and effective decisions regarding training. The emphasis of the analysis is on the job. The job determines what will be taught, how much will be taught, the instructional sequence, and what will be evaluated. The end result of a JTA process is a final report that contains a list of tasks weighted, sorted, and filtered through the Difficulty, Importance and Frequency (DIF) model.

There are many ways of conducting JTAs and there is also more than one way of analyzing the data. The Coast Guard uses the methodology that includes sorting survey results for individual tasks through the Difficulty, Importance, and Frequency (DIF) model. By utilizing the procedures outlined in this SOP, analysts will be able to produce recommendations for each of the tasks. Using these results, program and training managers at TRACEN's will be better able to determine which tasks should be selected for formal training, job-aiding (with or without training) and which tasks are most appropriate for OJT. There are four phases for conducting a JTA, they are:

1. Planning the JTA
2. Conducting the JTA
3. Analyzing Survey Results
4. Out-briefing Results

Planning the JTA

Job Task Analysis Applications

A JTA is used to:

- Inventory, describe, and sequence tasks, and/or
- Provide information for the program, rating, or course managers wishing to convert a course(s) to an alternate delivery format and they want to be certain the course task list is accurate before the work is undertaken.

What:	Why:	When:	Who:
Phase 1: Planning the JTA	Although a JTA is not difficult, it takes a great deal of planning & coordination to be successful. This phase consists of the following tasks: 1. Conduct alignment 2. Search documentation 3. Compile task list 4. Validate task list 5. May include the addition of step level data if the analysis reveals that existing tasks differ from the current curriculum.	CG-132 will determine when and under what circumstances a JTA is appropriate.	• CG-132 representatives • Program Managers • TRACENs/PTC • Commercial contractors
Phase 2: Conducting the JTA	Conducting the JTA phase includes the following tasks: 1. Designing a survey 2. Implementing a survey 3. Collecting survey data	This phase follows the JTA Planning phase	• CG-132 representatives • Program Managers • TRACEN/PTC analysts • Enlisted performance qualifications manager • Survey respondents • Vendor who hosts online survey

What:	Why:	When:	Who:
Phase 3: Analyzing Survey Results	This phase includes: 1. Work involved in actually analyzing survey results 2. Converting data on "Perform/Don't Perform" to numbers who perform that task and what percentage represents the population surveyed 3. Averaging results of answers to difficulty, importance and frequency (DIF model) 4. Converting demographic findings into easy-to-read charts, and 5. Validating the data and preparing the report.	The Analyzing Survey Results phase follows the Conducting the JTA phase	• TRACENs/PTC analyst staff • Commercial contractors
Phase 4: Out briefing Results	This phase involves coordinating with client and stakeholders to report JTA findings and recommendations. It also includes development of a follow-up Action Plan consisting of action items, to which those action items are assigned, and finally a plan of action & milestones for delivery.	The out briefing results phase follows the Analyzing Survey Results phase.	• CG-132 • TRACEN/PTC analysts or contractor • Program managers • Force Managers

Conducting the JTA

How to Conduct a JTA

Emerging technologies are changing the way we do our jobs and JTA is no exception. The Coast Guard is constantly researching and prototyping more efficient and effective ways to conduct a JTA. However, the Coast Guard does have a specific process and set of procedures for conducting JTAs.

The next section of this SOP contains the process and those procedures. All JTAs conducted for Coast Guard purposes shall follow these guidelines to ensure JTA outputs will be standardized throughout the organization.

There are 9 steps to follow when conducting a JTA, they are:

1. Conduct an alignment meeting with the client and stakeholders.
2. Conduct a document search for any and all related documents that relate to the job being analyzed.
3. Compile a prototype task listing.
4. Validate prototype task listing with SMEs.
5. Design external survey instrument.
6. Implement survey instrument to target population.
7. Analyze survey result responses.
8. Draft JTA report.
9. Out brief JTA results to client and stakeholders.

Step 1: Conduct Alignment Meeting

Conduct an alignment meeting with client and all stakeholders to determine:

- Business goal affected by project
- Project scope
- Target population (See note below)
- Funding
- Roles & responsibilities

NOTE: In regards to determining the target population to survey, ensure program and analysts are cognizant of the "right" survey respondent demographics. Picking the "right" sample or number of respondents to survey is critical to conducting a successful JTA. Where possible, the entire target audience should be surveyed (e.g., all personnel performing as a Safety Occupational and Health Coordinator). In cases that involve large numbers, you may use a purposive sample. Regardless of the method used, the program and training manager should approve of the sample population identified before administering the survey.

Step 2: Documentation Research	Conduct documentation research of all applicable documents and resources which may reveal additional tasks found in: • Enlisted Performance Qualifications (EPQs) • Curriculum Outlines for curriculum objectives • Technical publications • Commandant instructions • FEAs • OAs • O*NET data base from Department of Labor
Step 3: Develop a Task List Compilation	Using documentation research results, compile a draft prototype task listing.
Step 4: Prototype Validation	Select 4 to 6 key SMEs for the job being analyzed. Inform these individuals that they have been selected to provide their expertise in validating the core tasks for the job, equipment, etc. Coordinate with SMEs, to review the prototype task listing. • Revise and make necessary changes to prototype task list.
Step 5: Design Survey	If possible, use software that produces an online survey. Identify survey demographics (sample items follow): • What is your pay grade? • What is your geographic region/to what district are you assigned? • What is your parent command? • What is your length of reserve time (if applicable)? • What type of unit are you assigned? • Is this your first assignment as a ___? • How long have you performed as a ___ at your current unit? • Are your ____ duties full time or collateral? • If collateral, does your supervisor provide sufficient time to complete those duties? • Have you attended training for this assignment? • If you have any questions regarding this survey, may we contact you? **NOTE:** These are **sample** demographic questions. Questions will differ from survey to survey depending on alignment issues and analyst decisions.

Step 5: Design Survey (continued)	Design "heart of the survey" items. Design a survey so that **both the performer and his or her supervisor** are asked the same questions: • Include items that capture "perform/do not perform" data. • Design the survey so that supervisors who answer, "do not perform" have a menu of choices that captures why the task is not being performed. Sample menu items might be: o Not performed here. o We have different equipment. o Someone else performs the task here. o We have different tools for doing the work here. • Include items that capture task **difficulty, importance and frequency (DIF)**.
Step 6: Implement Survey	Prepare cover letter/ALCOAST draft for alerting target population that survey is available online during a specific time period. Use Coast Guard internal survey software where practicable. In some instances, a survey may be contracted through an outside vendor.
Step 7: Analyzing Survey Response Results	Determine percent performance for each task. Based on these results, consider deleting tasks that have a low performance percentage. (See job aid at the end of this section). Determine the mean for the responses to each of the DIF items; round off the mean score to the nearest tenth of a number. The results of the DIF score is used to make train, no train, job aid, job aid with training, and OJT recommendations to the client and stakeholders. (See job aid at end of this section for amplifying information about DIF results and decisions). Using demographic information, determine whether responses received are representative of target population. As an example, if all responses on CG-wide surveys are from one geographic area, you may need to resurvey non-respondents from other geographic areas.

Step 8: Prepare JTA Report

Compile JTA findings and recommendations into a report that includes:

- Table of Contents
- Executive Summary
  - Purpose
  - Methodology
  - Recommendations
- Project Background
  - Purpose
  - Background
- JTA Alignment
  - Project Alignment
  - Methodology
  - Definitions
  - Job Aid Filter
- Demographic Findings (issues that impact Enlisted Performance Qualifications (EPQs), if applicable)
  - Target Population
  - Unit Assignment
  - Rating and Pay Grade
- Analysis Findings
  - Difficulty, Importance, and Frequency (DIF) Filter
  - Percent Performed by Unit
  - Narrative Feedback
- Recommendations
  - JTA Recommendation
  - Future Action
- Appendices:
  - Job Task Analysis results and recommendations by percent performed
  - Copy of actual survey used

NOTE: For an example of a JTA report refer to the Aids to Navigation (AtoN) Light Emitting Diode (LED) JTA report found at the CG Analysis library at http://cgweb.tcyorktown.uscg.mil/PTC/library.asp

Step 9: Out brief JTA Results

Coordinate a time, date, and location to out brief JTA results. CG-132 will develop a Plan of Action & Milestones (POA&M) for any additional tasking.

JTA Job Aids

The following are a series of job aids that help with different aspects of conducting a JTA:

Outcomes from "Perform/Do Not Perform" Data	
If	**Then**
30% of respondents are NOT performing the task.	Discuss with your client whether or not to include tasks in the inventory that have a low percentage of performance. This depends on the scope of the job. For example, a "job" of maintaining a specific RADAR would require the percent performance to be at a higher level e.g., 70%.

Survey Explanation of How to Rate DIF for Tasks		
Difficulty	**Importance**	**Frequency**
1. Easy (anyone can do it) 2. Low difficulty 3. Moderately difficult 4. Very difficult 5. Extremely difficult	1. Minimal value 2. Low value 3. Moderate value 4. High value 5. Critical value	1. Infrequent/unpredict-able (less than 2/year) 2. Semi-annual (on average of 2/year) 3. Monthly (on average 2-3/month 4. Weekly 5. Daily

Definitions for Frequency, Difficulty, and Importance	
Criteria	**Definition**
Frequency of performance	Number of times the task is performed in a given time period
Difficulty of performance	Mental activity and motor coordination required to perform the task
Task importance	Potential for danger to self, others, operations, national security, equipment or the environment if task is not done properly

How to Convert DIF Means to Train/No Train Recommendations

Training Decision Table	
If	**Then Choose:**
Importance is 3.04 or less	Do NOT consider for training
Importance is 3.05 or more	Go on to difficulty
Difficulty is 2.04 or less	Consider OJT
Difficulty is 2.05 or more	Go to frequency
Frequency is 3.04 or less	Job aid
Frequency is 3.05 or more	Consider training
Filter for Job Aided Tasks	
If	**Then Choose:**
Difficulty is 3.00 or more	Job Aid with extensive training

Planning the JTA	
If These Criteria are True	**Then Choose:**
The task: • Is difficult to perform • Is difficult to learn • Has little or no delay tolerance (the amount of time that can elapse between the stimulus for the action and the time the action begins • Has severe consequences for inadequate performance	Training

Planning the JTA	
If These Criteria are True	**Then Choose:**
The task: • Is not used soon after training • Is seldom used • Requires moderate speed and high accuracy • Involves many steps • The time between task start and end of task is long • Requires recall of a lot of information • Involves actions which have serious error consequences • Has moderate or high delay tolerance	Job aids (may require training the job aid) **NOTE:** Job aids may require training. See Filter for Job-Aided Tasks.
If the task:	**Then Choose:**
• Is simple to perform • Is required of few performers • Involves the environment during performance (e.g. When performing celestial navigation, you are tasked to shoot the horizon at sea during sunrise or sunset).	OJT

How to Convert DIF Means to Train/No Train Recommendations

Minimum Sample Size		
Population Size	**Sample Size**	**Percent Required**
10	10	100
20	19	95
50	44	88
100	80	80
250	152	61
500	217	43
1,000	278	28
2,500	333	13
5,000	350	7
10,000	370	4

NOTE: The optimum sample size is the total group. When the total group cannot be surveyed either because of cost, time, or other constraints, a sample is drawn to represent the total. In the case of JTA, the target population is classified into separate groups (e.g., length of time in position, pay grade, geographical location, unit, or type of equipment used). At that point, a certain number is selected from each category in approximately the same proportions as the real population. The purpose of taking care in selecting an appropriate sample is to increase confidence that survey findings apply not just to the population surveyed, but to those who were not surveyed as well. Chapter 2, "Populations and Samples" of the USCG Workshop Survey Handbook, *The Design & Development of Survey Instruments*, by Dr. James A. Pershing, PH.D. contains more information about survey samples. View at (http://www.uscg.mil/tcyorktown/ptc/docs/survey%20jobaid.pdf

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The Performance Analysis Branch strives to improve the Analysis SOP on a continual basis. Please email questions and suggestions on how to improve it to TCYPF-PTCAnalysis@uscg.mil.

3.5 Costs Benefits Analyses (CBA)

Introduction	Cost benefit analyses are a Coast Guard requirement that should be completed BEFORE the organization will resource a project and are usually part of a larger analysis effort, such as a FEA. Cost benefit analyses allow decision makers with limited funds to select projects that maximize the dollars invested in our people. The analyst(s) must identify the cost associated with each Skill and Knowledge (S/K) performance improvement delivery option, and then present that information so that the decision makers can compare each option and select the one that best works for the organization.
Purpose	This section provides guidelines for conducting three cost benefit analyses (Cost Comparative Analysis (CCA), Cost Benefit Analysis (CBA), and Return on Investment (ROI)).
Target Audience for Cost Benefit Analyses	• Coast Guard Performance Analysts (Performance Consultants and HPT Practitioners) • Coast Guard Training System Managers • Commercial Contractors • Headquarters Program Managers
Background	Creating cost benefit analyses are dependant on many different factors. Each analysis project offers a different set of performance improvement options with unique costing requirements. The analyst should identify any constraints or assumptions that can influence the cost associated with these options. Often times, the request for analysis (RFA) will outline which type cost benefit analysis will be included as part of the final analysis report. However, it is imperative the analyst(s) work with the client to identify which type of cost benefit analyses (i.e. CCA, CBA, or ROI) should be included in the final analysis report. This should be done during the Project Alignment phase and revisited at any time during the analysis project when new cost factors are discovered. Think of cost benefit analyses as another data collection process and a tool for help in determining which of the S/K improvement options to fund. Selecting the type of analysis at the beginning of the project will ensure that the analyst(s) collects the proper cost information. There are three different types of cost analysis that can be conducted on a project: • Cost Comparison Analysis (CCA) • Cost-Benefit Analysis (CBA) • Return on Investment (ROI) Each of the three analyses has different requirements that must be completed, as well as the amount of information that must be collected. More information is collected as the analyst(s) goes from a CCA to a CBA, to a ROI. Analysts should only calculate ROI on products that meet certain criteria as discussed later in this section.

Other Considerations when Conducting Cost Benefit Analyses

There are many methods to consider when conducting a CCA, CBA, or a ROI. You can use any cost benefit analysis method to compare the cost (and benefits) associated with different kinds of performance improvement interventions. However, at a Training Center, most cost benefit analyses will only look at performance interventions to close gaps in S/K. Other considerations to keep in mind are:

- Regardless of which analysis (CCA, CBA, or ROI) methodology is performed, all cost benefit analyses have a short "shelf-life". As environmental and technological advances change in the workplace, the need to review and revise an analysis becomes imperative. Therefore, any cost benefit analyses over a year old should be reevaluated for its validity.
- The analyst(s) should also inform the client that all cost benefit analyses are ***forecasted.*** Project assumptions and constraints, technological advancements, and other environmental factors can make a ***forecasted*** analysis differ from the actual cost incurred after a project's implementation.
- When new technology is part of the CCA, CBA, or ROI report, it should include documentation of discussions with respective technical centers (i.e. TISCOM and OSC Martinsburg) regarding the feasibility of using this technology in the Coast Guard, as well as any associated "hidden" cost for doing so.
- All cost benefit analyses should include the kind of cost data required by the Coast Guard's Resource Proposal (RP) process, that is, the budgeting process used in the CG. The following link can be resources for standard cost and budget line items: http://www.uscg.mil/tcyorktown/ptc/Docs/HPTHandbook.pdf

Three Types of Cost Benefit Analyses

In detail, each of the three types of cost benefit analyses is defined below. As stated earlier, most analysis efforts in the CG will be a CCA, however, the type of analyses should be discussed and agreed upon with the client during the Alignment Phase of the larger analysis project. Regardless of which cost analyses is performed, all cost benefit analyses will include "First Year cost," as well as "Life-cycle cost" for each performance intervention.

Cost Comparison Analysis (CCA)

A cost comparison analysis presents several performance improvement delivery options and the associated cost for each of these options. This type of analysis is selected when the intangible benefits are difficult to quantify or assess the monetary value of the benefit to the organization. It can also be used to determine whether a project should be continued. Advantages and disadvantages are identified for each option however; a monetary value to the organization is not attached to the advantages or disadvantages.

Three Types of Cost Benefit Analyses (continued)

Cost Benefit Analysis (CBA)

A cost-benefit analysis (CBA) calculates cost, calculates benefits, and compares the results of each of the options. It is a method that tries to quantify the relative benefits (both negative and positive) of two or more training approaches at a given level of cost, where the decision maker can lay several options together and identify the best "bang for the buck". In order to use the CBA, the analyst must be able to identify and compute the monetary benefits that are associated with the cost of implementing a given solution. There are three major phases to completing an CBA:

1. Calculate cost.
2. Calculate benefits.
3. Compare the results.

A cost benefit analysis generally focuses on isolating the forecasted effects of the given solution to the impact on the business. That is, the program would be considered a success if the forecasted costs for implementing the program are less than forecasted benefits to the business, such as improved productivity, reduced accidents, etc.

Return on Investment (ROI)

ROI takes a CBA to the next level of evaluation and can only be conduced when a monetary value can be applied to the benefits. ROI is a formula and is calculated using the program's benefits and costs:

$$\text{ROI} = \frac{\text{monetized benefits} - \text{program costs}}{\text{program costs}} \times 100$$

Generally, ROI calculations are based on business impact data obtained after a program has been implemented. However, Jack Phillips, the author of Return on Investment in Training and Performance Improvement Programs and the leading authority on conducting ROI states, "forecasting ROI during a project, or in some cases, even before a project is pursued, is an important issue." Preprogram ROI forecasting is based on being able to accurately:

1. Estimate the changes in business impact data (tangible benefits; this is the amount of change directly related to the performance improvement intervention)
2. Convert that data into monetary values
3. Estimate project costs
4. Identify intangible benefits
5. Calculate ROI

Not every analysis is a good candidate for ROI. Short-term projects or projects that only affect a small percentage of the organization will have difficulty quantifying the time and resources to develop ROI. ROI should only be conducted on projects with extended life cycles that are tied directly to organizational strategic initiatives or to projects that have a high level of accountability as a result of a significant monetary investment.

Factors that Influence Costs and Benefits

Once the client and analyst(s) agree on the type of costing analysis to conduct, the analyst(s) must determine which costs to include in the report. Total training costs are determined by adding personnel cost, equipment cost, facility cost, and material cost. The table below provides examples of the type of cost that make up total training costs.

Cost Category	Potential Cost Targets	Cost Considerations
Personnel	• Administrators • Instructors • Instructional Designers • Students • Analysts • Developers • Graphic Artists • Contractors • Subject Matter Experts	• Pay and benefits of all direct (government employee) and indirect (contracting) people • Travel • Per diem (government or commercial rate) • Overtime
Equipment	• Simulators • Training Devices • Mock-ups	• Acquisition • Life Cycle Costs • Setup and Installation Cost
Facilities	• Classrooms • Labs • Offices • Libraries	• New or Existing Construction, Leasing Spaces • Recurring Maintenance
Materials	• Instructor Materials • Student Materials • Office Supplies	• Acquisition • Identify existing off the shelve materials from other Government Agencies. • Life Cycle Costs

Factors that Influence Costs and Benefits (continued)

You may want to explore costs for providing various instructional delivery modalities associated with your TRACEN in advance. Try different formulas to determine which ones work best for different situations.

NOTE: The Comptroller division can be a good source to use when you are conducting cost benefit analyses. They can provide standard personnel costs and other data you may need.

Additional Factors to Consider – e-Learning Levels of Interactivity

Other factors to consider when conducting Coast Guard cost benefit analyses are the levels of complexity and student interactivity, especially when an e-Learning modality (CD-ROM, EPSS, and CBT/WBT) is the recommended instructional strategy for the performance intervention.

Student interactivity is the number of and types of interactions the student has with the program. An e-Learning activity can be as simple as an electronic page turner, where the student simply reads information from a computer screen, or it can be as complex as an aircraft or Response Boat-Small simulator or virtual reality where every move the student makes interacts and influences the e-Learning environment.

When recommending a level of complexity and student interactivity, several variables should be considered, such as:

- Data obtained from SMEs and APs about the gap and the level of performance that must be performed by the student to master the learning objective
- Capability to provide drill and practice exercises based on the complexity of the tasks and its related steps
- Capability to provide branching paths from simple, moderate, or complex equipment operation based on the students response/action
- Computer evaluation of a student(s) performance and intellectual skills by computer based predictive and performance items
- Provide state-of-the art technology for simulation and communication
- Available resources that can be allocated towards the project (building, classroom, and laboratory facilities, software and hardware capabilities and product support, and funding)

Additional Factors to Consider – e-Learning Levels of Interactivity (continued)

There are five levels of complexity and student interactivity, that must be considered when developing an e-learning intervention, they are:

- **Level 1 (Passive)** - The student acts solely as a receiver of information
- **Level 2 (Moderate Student Interaction)** - The student makes simple responses to instructional cues
- **Level 3 (Complex Student Interaction)** – The student makes a variety of responses using varied techniques in response to instructional cues
- **Level 4 (Real-Time Student Interaction)** – The student is directly involved in a life-like set of complex cues and responses
- **Level 5 (Complex Student Interaction w/ Virtual Reality)** - Computer/web based training: text graphics, and animation with full student interactivity (virtual reality simulation)

On the surface, it may appear that the bottom line to produce some form of electronic media training instruction is significantly higher than resident training. However, depending on the level of complexity and student interactivity when using electronic media, the pay-off is in the learning transfer, which can reduce the overall training time by as much as 50% (See **Note** below).

When calculating the cost for these types of performance interventions, use the table on the next page for determining the associated development hours based on the level of complexity and student interactivity for e-Learning Instructional strategies.

NOTE: Industry standards suggest that the further you move the student away from the instructor led trainer (e.g. EPSS or self-paced computer based training), the instructional development hours will increase, thus increasing the overall First Year cost.

Introduction to Industry Standards Table (Benchmarking)

One of the ways to determine levels of student interactivity estimates is to use some type of benchmark within the industry for the design and development effort required for each developmental hour associated with various instructional strategies. Unfortunately, within the international training community, there is no agreed upon standard for estimating number of hours when estimating design and development hours for the various instructional strategies.

The table on the next page was created after consolidating interviews of expert e-learning curriculum design development organizations and CG internal e-Learning experts, lessons from International Society of Performance Improvement (ISPI), American Society of Training and Development (ASTD), and CG HPT Conferences, and a thorough review of e-Learning topics and articles. It provides some degree of standardization and outlines accepted ratios concerning e-Learning design and development times, as well as all other instructional strategies that my be considered when closing the S/K gap.

Design & Development Hours Industry Standards (Benchmarking) Table		
Type of Training per 1 Hour of Finished Instruction	**Most Experienced Design & Developer (per 1 hour of instruction)**	**Minimum Experienced Design & Developer (per 1 hour of instruction)**
Traditional design and development instruction		
Stand-up training	20 hrs.	70 hrs.
Self-instructional print	80 hrs.	125 hrs.
Instructor-led or computer or web-based training	30 hrs.	80 hrs.
Computer/web based/EPSS design and development (from scratch)		
Level 1 (Passive): Computer/web based training: text only with limited student interactivity	100 hrs.	150 hrs.
Level 2 (Limited Student Interaction): Computer/web based training: text and graphics	150 hrs.	200 hrs.
Level 3 (Moderate Student Interaction): Computer/web based training: text graphics and animation with moderate student interactivity	250 hrs.	400 hrs.
Level 4 (Complex Student Interaction): Computer/web based training: text graphics and animation with full student interactivity (not simulation)	400 hrs.	600 hrs.
Level 5 (Complex Student Interaction w/ Virtual Reality): Computer/web based training: text graphics and animation with full student interactivity (virtual reality simulation)	600 hrs.	1000 hrs.
Web-based/EPSS training within a template		
Level 1 (Passive): Computer/web based training: text only with limited student interactivity	40 hrs.	100 hrs.
Level 2 (Limited Interaction): Computer/web based training: text and graphics	100 hrs.	150 hrs.
Level 3 (Complex Interaction): Computer/web based training: text graphics, and animation with moderate student interactivity	150 hrs.	200 hrs.
Learning object-based dynamic webpage	60 hrs.	300 hrs.
Online Help system	3 hrs.	10 hrs.

The table above was from a web-based article written by Karl M. Kapp (2003) and derived from *Learning Circuits,* ASTDs source for e-Learning.

How to Conduct Cost Benefit Analyses

The table below outlines the steps for conducting any of the three cost benefit analyses:

Steps:	Actions:
1	Review the skill/knowledge gaps in the outputs of the analysis report (i.e. FEA report). To complete anyone of the three cost benefit analyses, the analyst(s) must have a completed FEA, JTA, or TRA. **NOTE:** Some times the analyst(s) may be asked to only update the cost benefit analysis section of a previously completed analysis project.
2	Identify the constraints with the client (normally the HQ program manager) i.e.: • Select which type of analysis to conduct • Resources available to close the gaps • Existing programs sponsored efforts to address situation (there may take some detective work to uncover) • "Cultural" barriers to implementation
3	Determine the appropriate instructional strategies based on the Train to memory, Job aid with extensive training or Job aid with introductory training requirements. **NOTE:** Tasks that should be Job-aided or Job-aided with extensive training are good candidates for online job aids and/or for an EPSS, or a "blended" solution.
4	Conduct an off-the-shelf search to identify if there are any courses or products developed by other government agencies that could be considered as options when conducting one of the cost benefit analyses.
5	Develop at least 3 options for possible ways to deliver the S/K intervention(s). **NOTE:** Resident training will most likely be one of the options.
6	Identify which cost to include for each option and any other associated costs. (See Factors that influence costs and benefits). Cost will need to be identified as "First Year cost and "Life-cycle" cost. Most models will consider the following cost: • Personnel cost • Training materials • Delivery cost • Travel cost
7.	Total all costs (by First Year cost and by Life-cycle cost).

How to Conduct Cost Benefit Analyses (continued)

Here are the remaining steps for conducting any of the three cost benefit analyses:

<table>
<tr><th>Steps:</th><th>Actions:</th></tr>
<tr><td>8</td><td>Identify advantages and disadvantages for each option. Make sure to capture both tangible and intangible benefits.</td></tr>
<tr><td>9</td><td>
<table>
<tr><th>If conducting a…</th><th>Then…</th></tr>
<tr><td>CCA</td><td>Skip to step 10</td></tr>
<tr><td>CBA or a ROI</td><td>Identify measurable benefits (any gain directly resulting for the performance intervention option you are analyzing. Savings could be for:
Time
Materials
Equipment
Reduction of personnel turnover
Solving personnel problems such as accidents</td></tr>
</table>
</td></tr>
<tr><td>10</td><td>Capture the data compiled in steps 2 through 9 in the cost benefit analyses section.</td></tr>
<tr><td>11</td><td>Write the cost benefit analysis report and add as an appendix to the FEA (or other types of analysis) report. Keep in mind that costing analysis can be part of another analysis project or as identified in the alignment meeting.</td></tr>
<tr><td>12</td><td>Circulate analysis (FEA, JTA, or TRA) report through internal approval chain and make corrections/upgrades as required.</td></tr>
<tr><td>13</td><td>Publish the report.</td></tr>
<tr><td>14</td><td>Coordinate out brief date/time (out brief may be done via phoncon, video-tele-conference (VTC), or other means other than travel).</td></tr>
<tr><td>15</td><td>Out brief cost benefit analyses as part of the larger analysis effort.</td></tr>
<tr><td>16
(optional)</td><td>May be contacted by training and program managers to discuss feasibility of developing selected option.</td></tr>
</table>

Anticipated Answers when Conducting a Cost Benefit Analyses	Although there are many different ways to conduct CCA, CBA, or a ROI analysis, any method selected should produce results that allow decision makers to answer these questions: For CCA, CBA and ROI: • How does this project stack up with other competing training priorities? • Is the cost so high that it doesn't matter how many performance problems it solves? • Will this solution really eliminate performance deficiencies? In addition for CBA and ROI: • Will this performance intervention or training program provide real benefits (worth) to the organization? Do those benefits outweigh the cost of developing and implementing the intervention? • How does the project tie into Coast Guard business goals and family of plans?

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The Performance Analysis Branch strives to improve the Analysis SOP on a continual basis. Please email questions and suggestions on how to improve it to TCYPF-PTCAnalysis@uscg.mil.

3.6 Performance Systems Analysis

Introduction and Definition	This section defines Performance Systems Analysis (PSA) and provides a methodology for conducting it. PSA is the practice of looking at entire systems even when analyzing the performance of one part of the system. Analyzing the system means looking at major variables that influence performance. The PSA is an overarching (umbrella) macro-analysis that focuses on human performance in organizations and complex systems. It is a systematic and data driven process of analyzing human performance and systems operation and maintenance that relates to the execution of Coast Guard missions and doctrine. The PSA looks at the conceptual world of work which is expected to be created as a result of one or more of the following : • Major acquisitions • New or expanded missions • Organizational components • Reorganization/restructure/reengineering • Complex systems (including platforms) • New technologies The PSA is anchored in the work needed to achieve mission outcomes and analyzes all elements in the organizational domain for their impact on the worker. The PSA may include all components of the Addie Model.
Purpose	The purpose of a PSA is to study significant organizational, systems, or mission performance issues through analysis that follows a systems approach and identifies performance improvement interventions that support mission execution. The PSA can be analyses only or can include pre-design, design, development, implementation, and evaluation of interventions. A PSA is most effective on a multi-year or major acquisition project.
Target Audience for PSA	This process will be used by Coast Guard and contracted HPT practitioners to provide data to: • Acquisition Managers, • Program Managers, • Rating Force Master Chiefs, • Training Managers, • Contractors, and • Training Center Managers

Background

As the Coast Guard acquires new systems, technologies, platforms, and conducts reorganizations, efforts are made to include state-of-the-art systems for enhanced operation and performance. Many of these systems are significantly different from existing systems or sub-systems. As the platform, system or technology is being designed and developed/built, specific equipment, capabilities and sub-systems are identified for inclusion. To prepare the initial personnel who will operate or maintain the system, platform or technology, there is a need to identify the components of the system, to then identify performance required on the system, and finally to make recommendations to close any anticipated performance gaps. The methodology identified to accomplish this is a PSA.

The PSA may be conducted by Coast Guard HPT practitioners or by HPT contractors. The results, even when the analysis is based on potential/anticipated performance, will result in interventions needed for initial performers to have capabilities, skills and knowledge, environment, and tools/equipment needed to perform the work.

Why Use PSA Methodology?

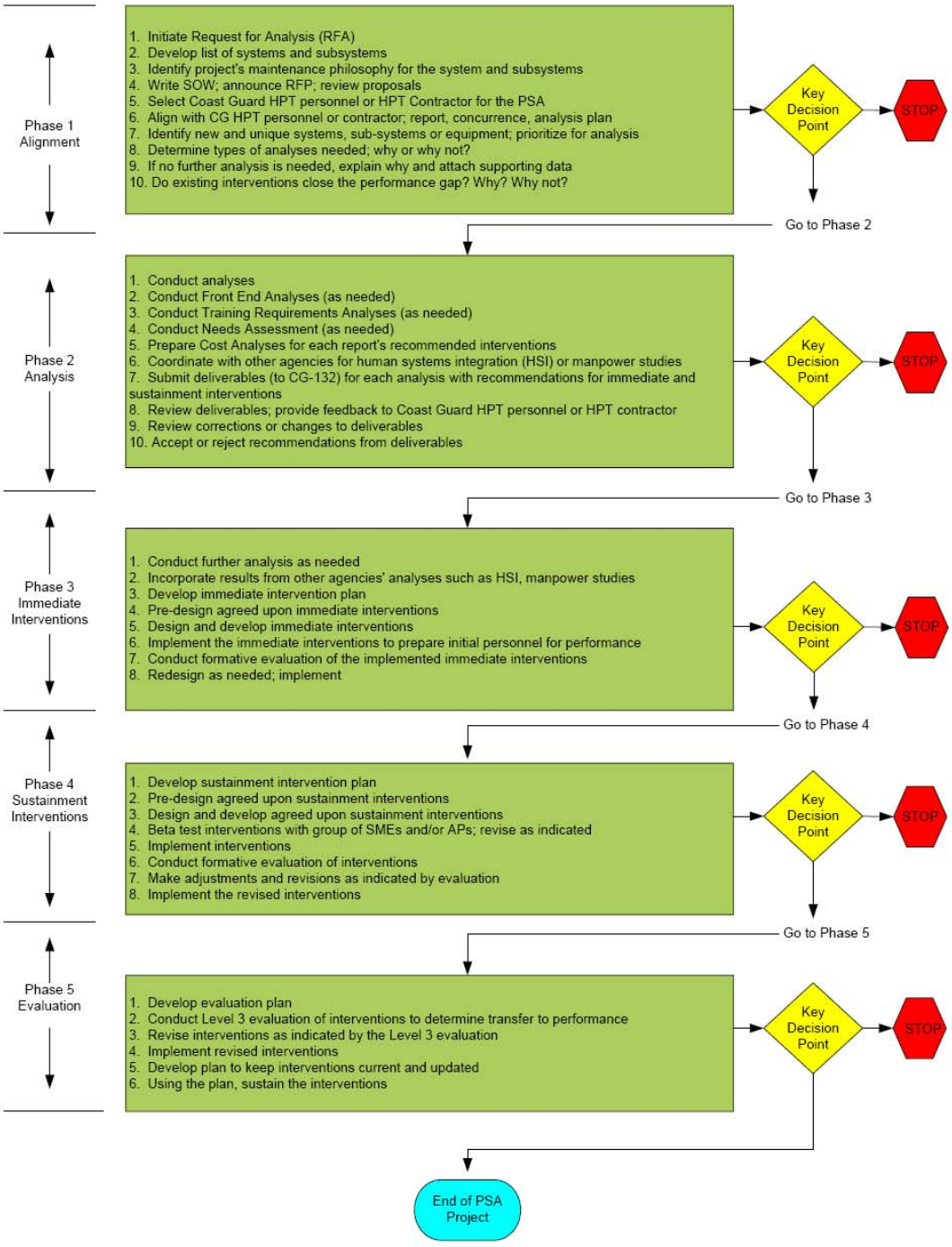
When the Coast Guard has a major acquisition or a major change in organizational structure and as new technologies are infused into Coast Guard systems, a group of analyses on the system and various sub-systems and performance interventions is needed. The PSA is used to determine:

- What new work requirements will emerge
- Whether performance gaps are expected
- What existing performance interventions and training may fill the anticipated gaps
- What new performance interventions will be required
- How the performance interventions will be designed, developed, implemented and evaluated
- Costs of various options for getting the interventions designed, developed, and implemented
- Whether performance of any rating will significantly change.

How Does PSA Fit into HPT Methodologies?	The PSA includes all authorized human performance analysis methodologies in this SOP. A large analysis project (i.e., the acquisition of a new vessel or class of vessels) may require multiple analyses, of various types. CG-132 will guide the Coast Guard HPT professionals or HPT contractors in determining what is appropriate for each project. A number of FEAs may be needed. Some of those FEAs may be New Performance Planning and some may be Diagnostic FEAs. A Training Requirements Analysis (TRA) may be needed if there is current training on an existing or similar system or sub-system. If other gaps are expected, a Strategic Needs Assessment may be needed. If the new system or technology will require major changes in a rating's work performance, an Occupational Analysis may be needed. Human-systems Integration (HSI) or manpower studies may be needed. Identification of performance gaps from these various analyses will lead to recommendations for performance interventions. Cost Benefit Analyses will illustrate the various options for providing the performance interventions and costs of each option. For long-term decisions, the costs may need to be projected over the anticipated life of the system or technology.
PSA Process	Depending upon the project's needs, the PSA process may also include pre-design analysis. This will result in task and step level data needed to develop a course curriculum, e-learning, job aids, and/or electronic performance support systems (EPSS). A PSA Statement of Work (SOW) may require work in addition to human performance analysis. It may include Human-Systems Interface (HSI) studies, time and motion studies, manpower studies, Mishap Report or CASREP analysis to determine trends in safety and performance, design and development of performance interventions, implementation of the interventions, and evaluation of the interventions to determine their value to the organization.
Requirements for Conducting a PSA	A PSA begins with a Request for Analysis (RFA) submitted to CG-132, followed by a review of system requirements (components, and vessel systems, for example) and flow-charting personnel responsibilities in a new organization. The system requirements and personnel responsibilities are analyzed to determine the most immediate analysis needs. Each type of analysis in this SOP may become part of a PSA. For example, Coast Guard or contractor HPT practitioners conducting the PSA look at all systems on a new platform. If it is determined that new performance is needed to operate or maintain a system or sub-system, then a FEA (New Performance Planning or Diagnostic) is conducted. If there is existing training that may close the performance gaps, then a TRA will be conducted. When the acquisition of new systems or equipment means there are no Coast Guard accomplished performers, analysts use the following approaches: • interview people who designed new system • convene a task force of SMEs to speculate new performance • study similar systems and performances in another organization (military or civilian).

PSA Roles	The lead on the PSA project is CG-132, working in conjunction with the Performance Technology Center, to determine what effort is needed and when. They review and accept or reject deliverables, providing formal comments back to the HPT Coast Guard or contractor personnel who are conducting the PSA. The project manager, project logistics manager and sponsor's representative are involved in the management of the PSA process.
PSA Process Explained	The following flowchart displays the, PSA process in each phase, with each decision point and with the work to be conducted Depending upon the requirements for the system, technology or platform, the types of analyses and performance interventions selected will be customized for each project. For more specific guidance on the methodology for conducting a PSA, please see Appendix R.

Performance Systems Analysis Process



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SECTION IV: Occupational Analysis (OA)

Introduction	Occupational Analysis (OA) is a process that measures the job performance requirements of an occupation. OA takes a "snapshot" of an occupation's world of work at a particular point in time. OA, as an integral part of the Enlisted Performance Qualifications (EPQ) process, is mandated by the Enlisted Performance Qualifications Manual (EPQM) (http://www.uscg.mil/directives/listing_cim.asp?id=1000-1999/CIM_1414_8C.pdf), COMDTINST 1414.8C. The Coast Guard follows a prescribed cycle for conducting an OA for each of its enlisted ratings. It might also conduct an OA to analyze a whole community's world of work (i.e., officers, enlisted and civilians performing jobs within the Marine Safety community). OA can also be used to examine non-traditional jobs such as Command Master Chief or the all-Reserve IV rating which has a mixture of enlisted, officer and civilians performing the rating's work. The slogan for Coast Guard OA work is "Real Data for Real Decisions." That slogan underscores the need to use a rigorous and systematic process to obtain Coast Guard occupational data. The Coast Guard must have absolute confidence in the integrity of OA data because it is used to help determine: • Entry level and subsequent pay grade performance qualifications • Appropriate training • Proper staffing
Purpose	This section provides guidelines for conducting OAs in a standardized format. **NOTE:** More detailed information on the steps needed to conduct an OA is contained in the Occupational Analysis Users Guide maintained by the Performance Technology Center (PTC) Occupational Analysis Section. This Users Guide is for internal PTC use only.
Target Audience for OA	• Headquarters Program/Force Managers • Coast Guard Training System Managers

Background

Prime customers for OA data are the Coast Guard's Rating Force Master Chiefs (RFMCs), (http://www.uscg.mil/hq/mcpocg/1force/force.htm). As prescribed by EPQM, Enlisted Performance Qualifications Reviews panels use OA's outputs to assist them in determining the correct performance qualifications for each pay grade within that Rating. CG-132 Training Managers are also prime customers for OA since they manage the Enlisted Performance Qualifications Program. They validate the performance qualifications an Enlisted Performance Qualifications Review identifies. At the E-4 level, once CG-132 publishes official E-4 performance qualifications, course designers/developers, and contractors use that information to determine content for and to develop Coast Guard training curricula.

Program Managers may also request an OA (e.g. analyze occupations within the Marine Safety community or analyze information related to standing up a new rating such as law enforcement/security).

The Coast Guard conducts an OA because it has a recurring need to look at the jobs its people are performing to ensure that training and qualifications reflect the true needs of the field.

The EPQM mandates OA studies for the Coast Guard's enlisted ratings. Currently, the Performance Technology Center (PTC) (http://www.uscg.mil/tcyorktown/ptc/index.shtm) conducts all OAs in the Coast Guard.

OA Process Table			
Accomplishment:	**Action:**	**When:**	**Who:**
FY OA Schedule Developed	EPQM mandates an OA every 3 years for its technical ratings (AMT, AST, AET, EM, ET, GM & IT) and an OA every 4 years for its non-technical ratings (OS, BM, DC, MST, MK, SK, PS, FS, HS, YN, IS, IV, PA).	CG-132 works with the PTC and program managers each spring to finalize an OA slate for the upcoming fiscal year.	• CG-132 • Program Managers • PTC OA staff
Alignment Agreement	Hold alignment meeting to explore the request for an OA in more detail and to obtain alignment on key issues such as subject matter expert (SME) identification.	As soon as a meeting can be coordinated after receiving formal tasking from CG-132.	• RFMC • PTC OA staff • CG-132 Training Manager
OA Survey Developed	The OA survey is developed (i.e., survey questions, demographics, survey design, posting survey online, etc.).	Post alignment (lasts approx 45-60 days).	• PTC OA staff • RFMC • SMEs
OA Survey Administered	The OA survey is administered - there may be additional work in this phase if analysts must involve HQ program managers in devising strategies to increase survey response rates.	Follows survey development (minimum six (6) weeks).	1. PTC OA staff 2. vendor hosting survey 3. RFMC 4. Possibly CG-132 Training Managers and/or Program Managers

Accomplishment	Action:	When:	Who:
Survey Analyzed	Analyze the data obtained from survey responses (i.e., return rates, performance qualification recommendations, etc.).	Follows survey administration (Approx four (4) weeks).	PTC OA staff
Report Prepared	OA report prepared and routed for signature.	Follows analysis of responses (Approx. four (4) weeks).	PTC OA staff
OA Findings Reported	Report OA results and consult in the Enlisted Performance Qualifications Review as prescribed by EPQM.	Analysts coordinate the report out phase following completion of report (1 day). This out brief effectively ends the formal OA process. Approximately one month after the out brief, OA analysts participate, at the pleasure of CG-132, in the Enlisted Performance Qualifications Review (4 days).	• PTC OA staff • RFMC • CG-132 Training Manager • Enlisted Performance Qualifications Review Panel Members

How to Conduct an OA	The Coast Guard has a specific process and set of procedures for conducting an OA. The next section of this SOP contains that process and those procedures. All OAs conducted for Coast Guard purposes shall follow these guidelines in order to standardize OA outputs throughout the organization.

Alignment

Step	Action
Start Project	1. Initiate OA Project due to tasking from CG-132. 2. Hold alignment meeting with Rating Force Master Chief. 3. Identify Subject Matter Experts for task validation.

Survey Development Phase

Prepare Starter Package of Survey Questions	1. Gather task data from the following sources: • Enlisted Performance Qualifications (EPQs) • O*Net (Department of Labor) • V-Tecs (Vocational Technical Consortium of States) • Front End Analysis • Job Task Analysis 2. Develop prototype OA Duty and Task List: • Duty is a broad descriptor under which tasks are organized. Duty areas consist of clusters of tasks • Tasks are specific actions. These actions represent a single unit of measurable work and have a definite beginning and end
Validate Survey Questions with SMEs	1. Conduct Task Validation Meeting (about 2.5 days) to validate core duties and tasks performed by the rating and the associated task verbs. 2. This meeting is also used to validate Tools/Equipment/Software, rating-related schools, rating-related collateral duties, and rating-related competencies.
Submit Survey Questions to RFMC for Final Approval	1. Send RFMC Microsoft Word file of SME validations. 2. Allow one-week turnaround. 3. Incorporate recommended changes made by the RFMC (any change to SME duty/task validation is strictly limited).

Design Survey	1. Develop "initial" Occupational Survey consisting of the following sections: **a. Demographics** 1. Time at present unit 2. Current duty status 3. Current pay grade 4. Senior person aboard unit? 5. Only person aboard unit? 6. Number personnel supervised 7. Hours worked per week 8. Hours watch per week 9. Computer usage per day 10. First assignment in rating? 11. Schools completed 12. Enlisted Qualification Codes held 13. Type unit currently assigned to 14. Type units assigned to in past b. **Duty and Task inventory** (from SME and RFMC validation)…also include general Duty/Task areas applicable to all surveys (i.e., Law Enforcement, EPME, and Collateral Duties). This section is the heart of the survey and will contain provisions for determining which tasks the individual performs and the relative time spent performing each task. It may also include other task-related variables such as Frequency, Difficulty, Importance, Criticality, when needed, and others as required by the Coast Guard. **c. Additional write-in tasks** **d. Tools and Equipment Inventory** **e. Software Inventory** **f. Job Satisfaction (35 standardized questions)** **g. Career Intentions (3 standardized questions)** **h. Problems completing survey on-line?** **i. Hours to complete survey** **2. Survey Design Truths** a. Hold constant the Demographics, Job Satisfaction, and Career Intention questions. b. Categorize task statements according to the current Enlisted Performance Qualifications. c. Ensure all task statements in current EPQs are included for validation.
Review & QA Process	Have survey reviewed by another OA analyst before sending to contractor for posting.

Post On-line	Send survey to contractor for posting on-line.
Review Survey After Posting On-line	All OA analysts review survey after posting on-line to server but before distribution to target population.

Survey Administration Phase

Administer Survey	1. Request rating data base from PSC. Normally this is for Active Duty only. 2. Prepare individual emails for all participants. 3. Make survey available to respondents for a minimum of 6 weeks. 4. Develop matrix of unit type and pay grade in Excel format and send to contractor. 5. Contractor will provide a weekly update showing the return rate by unit type and pay grade.

Survey Analysis Phase

Analyze Survey Results	Analyze survey results for each of the following categories using SPSS software. 1. Return Rate Summary 2. Performance Qualification recommendations (Qual Table) 3. Sea/Shore Tasks Active Duty Percent by pay grade 4. Relative Manhours by Major Accomplishment 5. Equipment/Tools/Software Analysis 6. Current Duty Status 7. Time at Present Unit 8. Current Pay grade 9. Senior Rating Aboard Unit 10. Only Rating Aboard Unit 11. Number People Supervised 12. Hours Worked Per Week Shore 13. Hours Watch Per Week Shore 14. Hours Worked Per Week Sea 15. Hours Watch Per Week Sea 16. Hours Using Computer Workstation 17. First Assignment in Rating 18. Schools Completed 19. Units Assigned To 20. Competencies Held 21. Job Satisfaction Analysis 22. Career Intention Analysis 23. Reserve Task Percent by Pay grade 24. Maintain all raw data from the survey in an SPSS file.

Report Preparation Phase

Prepare for Out brief	a. Use template from last OA report to present results obtained from Survey Analysis Phase. b. Route report through PTC chain of command for signature.

Report Out Phase

Out brief Survey Results	1. Schedule report out meeting with RFMC and CG-132. 2. Present overview of report to RFMC, CG-132 and interested Program Managers. 3. Participate in Enlisted Performance Qualifications Review held by CG-132 as consultant to the OA report and findings.

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SECTION V: GLOSSARY

Term:	Meaning:
Ability	Latent capacity of a person to perform a job task; it includes knowledge, skills, attitude and application in complex and novel circumstances; abilities are developed over time through practice and feedback.
Accomplished Performer (AP)	Worker who routinely produces accomplishments at or above standard. Often intended to mean the **BEST** performer now on the job; a person whose skill or performance exemplifies the optimal or desired state; this is the person who does the job best; this is NOT the same as a SME.
Accomplishment	An output of behavior that has direct value to the goals of the job and the organization (e.g., equipment operational).
Accomplishments	The outcomes or products of a worker that are valuable to his/her organization. For example: Officer Evaluation Reports ready for approving signatures; decision on number of enlisted personnel above the advancement cutoff. See outputs.
Action Plan	A plan that identifies who will implement recommended solutions/interventions from an analysis; developed by CG-132 Performance Consultants in conjunction with client and analysis source during, or immediately following analysis out briefs.
Actuals	The current skills, knowledge, perspectives, and environment of individuals in an organization; specifics about what people do now.
Adaptation	Tailoring existing training to better fit current needs in terms of content and/or design.
ADDIE model	An acronym developed to capture the five phases of the ISD model: **A**nalysis, **D**esign, **D**evelopment, **I**mplementation and **E**valuation.
Alignment	First phase of the Peak Performance System Phase 1 (Analysis) process. Involves interpretation of request from a potential client, gathering of information regarding a project, deciding on type of analysis relevant to the project, and specification of Initial Goal of the project.
Alternative Delivery	Delivery methods for S/K other than traditional instructor-led courses.
Analysis	Break down into component parts. Work done prior to the design of a project. Diagnostic FEA, Planning FEA, Assessment of exiting training, or Maintenance of existing training are all types of analysis.
Analyst	Person who performs Coast Guard range of analyses, normally a CG Performance Technologist or Certified Performance Technologist.

Term:	Meaning:
Assessment	Investigation of existing training to determine if should be adopted as is or adapted to current needs, or rejected outright.
Assignment & Selection (A/S) Intervention	An intervention to improve performance that involves matching "right" people to specific jobs.
ASTD	American Society for Training and Development (**NOTE:** Certifying body for the professional performance certification of Certified Professional in Learning and Performance (CPLP)).
Attitude	The choices we make; generally speaking, people choose to do things when they value the results and have confidence in their capacity to perform the task.
Audience Analysis	Also known as Learner Analysis; study that describes the nature of the worker or students; the determination of pertinent characteristics of members of the target population; often includes prior knowledge and attitudes toward the content to be taught, as well as attitudes toward the organization and work environment.
Barriers	Individual and organizational factors that constrain the success of people and organizations; for example, executives lack keyboard skills, so they avoid email; barriers influence the proposed solution set.
Behavior	The action a person takes to produce an accomplishment; some behaviors are covert (you can't see them) like decision-making and applying rules – others are overt (you can see them); e.g., welding a specific piece of equipment, using Direct Access to check a billet's history, etc.
Benchmark	Comparative standard for evaluating accomplishments against known exemplars of excellence; a benchmark is a targeted goal that is beyond current capabilities, but for which the organization is striving.
Blended solutions	A mixture of training and performance supports, i.e., Web Based Training, Personal Digital Assistant for data collection, Electronic Performance Support System containing links to pubs and job aids)
Cause Analysis	Study to determine what gets in the way of individual and organizational performance and why; cause analysis should result in recommended actions that address specific categories of causes, such as: motivational, environmental, skills/knowledge, and equipment; the idea is that there is a different way to address problems that have different causes; cause analysis helps ensure that the solution will solve the problem; see Root Cause Analysis.

Term:	Meaning:
Causes	Influences that impede individual and organizational performance; there are four kinds of causes: (1) Absence of skills and knowledge or information (2) Weak motivation (3) Improper environment (4) Flawed incentives (5) Wrong assignment & selection The causes of undesirable performance should be uncovered during analysis; the causes define the nature of the proposed solution set (See Barriers and Drivers).
CG-132	Coast Guard Headquarters, Training section.
Change Management	A systematic process of taking into account the global conditions affecting an organization, as well as specific conditions in the organization; the change management methodology examines the current environment with respect to infrastructure, personnel, skills and knowledge, people/machine interfaces and incentive systems.
Consequences of error	The penalty for non-standard performance.
Constraint	Givens of a project that may represent a barrier to ideal design unless minimized.
Cost Benefit Analyses	A Coast Guard requirement that is completed before an organization provides resources for a project. A costing analysis study, which will consist one of three, studies (Comparative Analysis, Cost Benefit Analysis, and Return on Investment). Cost benefit analyses are usually a part of a larger analysis effort, such as a front-end-analysis.
Cost-Benefit Analysis	A cost benefit analysis calculates cost, calculates benefits, and compares the results of each option. It tries to quantify the relative benefits of two or more training options at a given cost, allowing the decision makers to compare benefits and the cost of each benefit.
Cost Comparison Analysis	A cost comparison analysis presents several performance improvement delivery options and the associated cost for each of these options. This type of analysis is selected when the intangible benefits are difficult to quantify. It can also be used to determine whether a project should be continued.
Criticality	Essentiality of a task to performance on the job.
Curriculum	A course of study. A Coast Guard curriculum consists of pre-design, course design, lesson plans, training aids, instructional materials, student evaluation plan, tests, course map, all other associated training materials and a curriculum outline
Demographics	Characteristics of the population (i.e., age, gender, grade, rating, geographic location, unit type, time in service, time in job, etc.) used by the analyst to make assertions about survey data; vital statistics related to survey participants.

Term:	Meaning:
Design	The second phase of the ISD model, design work involves creating a blueprint or course map that plots out how the training program will be delivered, what methods and strategies will be used, how people will be tested, what training materials and media need to be developed and so forth. Design work acts as a blueprint for the developer to use in developing the training program or performance support.
Development	The third phase of the ISD model, development work consists of developing or producing products from the plan (design) provided by the course designer. Typical development work involves creating completing tests (level 2 evaluations), developing lesson plans, course materials, selecting media, training aids, case studies, role plays, electronic performance supports, job aids and so forth.
Diagnostic Front-End Analysis (FEA)	A problem-solving set of analysis procedures used in projects when existing performers are not producing present accomplishments satisfactorily; the procedures finds the deficiency (gap) in performance, as well as the cause and solution.
Diagnostics	The practice of troubleshooting problems for causes.
Difficulty	How difficult it is to perform a specific task and/or how long it takes for a student to learn a specific task (criteria: 10 or more steps, fine judgment to tell things apart, application of rule with many exceptions, precise hand-eye coordination, fine-grained muscular movements, several decisions to be made, how long it takes).
Difficulty-Importance-Frequency (DIF) model	A filter used to determine whether a task should be trained, job-aided, or learned on-the-job.
Drivers	Levers in an organization and person that influence performance; there are many drivers: for example, how much a person knows, how much that person values the work, the person's confidence, the available tools, and an organization's culture, policies, and incentives; the drivers influence the nature of the solution set that is proposed (See Barriers and Causes).
Duty	Major divisions of work in a job, comprised of a group of related tasks; a broad descriptor under which tasks are organized. Duty areas consist of clusters of tasks.
Duty and Task Inventories	A list of all duties and tasks associated with a Coast Guard Rating; validated by the SME at the beginning of the OA process.
Electronic Performance Support System (EPSS)	Electronic job aids designed to help a worker perform a task or a set of tasks; they can either be built into the equipment's operating system or they can be provided as a stand-alone software application or a handheld data assistant.

Term:	Meaning:
Ends	The results, impacts, or accomplishments we get from applying the means; they are what is achieved
Enlisted Performance Qualifications (EPQs)	Observable and measurable core competencies that enlisted personnel in each rating must perform before advancement to the next pay grade.
Enlisted Performance Qualifications Review	A yearly review by the Rating Force Master Chief to update the rating's EPQs; a more formal review coached by CG-132 is done every 3 or 4 years based on the results of an occupational analysis.
Enlisted Qualification Codes	Codes that supplement the enlisted rating structure by identifying special skills and knowledge that require a more specific identification than that provided by rates and ratings.
Environment	The environment that surrounds and affects performance is made up of policies, procedures, processes, available time, physical space, tools, equipment, work design, etc.
Environmental Interventions (ENV)	Those recommendations that seek to close gaps in the performer's current environment (e.g., better work design, easily accessed standardized workflow procedures, etc.).
Evaluation	The process used to measure the value and effectiveness of a learning program
Extant Data Analysis	Analysis of records and files collected by an organization reflecting actual employee performance and its results (for example, attendance figures, help desk tapes, callbacks for repair, employee evaluations).
Feedback	Feedback consists of information about the nature of an action and its result, in relation to some criterion of acceptability. It is never-ending input of one sort or another.
First Year Cost	An aggregate total of the non-recurring costs, the overhead instructor cost, and the recurring costs.
Formative Evaluation	Evaluation designed to collect data and information that is used to improve a program, product, or instruction; conducted while the program is still being developed.
Frequency	How often the task is performed on the job.

Term:	Meaning:
Front End Analysis (FEA)	Work done prior to the design of a project. Two types: Diagnostic for existing performance problems and New Performance Planning (NPP) for new starts. Term coined in book An Ounce of Analysis by J. H. Harless, 1970. A level of performance analysis that is a subset of program level analyses. FEAs are limited to specific individual jobs, specialties, or activities, and they are geared toward individual performance. If using this methodology for a group or unit with varied jobs, the PT will more likely conduct a series of FEAs, one for each of the individual jobs. The FEA report includes a set of required skills that are used in the follow-on design of training. The report also includes other recommended non-training interventions.
Goal	In context of alignment, a description of the initial intention of a project in terms of the type of analysis to be performed (e.g., to conduct an analysis for the deficient situation: "Performance appraisals are not being produced satisfactorily."
Goal Analysis	A determination of what it is you want learners to be able to do (and know) when they have completed a course of instruction or used another intervention.
Human Performance Technology (HPT)	A careful and systematic approach to solving problems – or realizing opportunities – related to the performance of people, groups, or organizations. It results in solutions that improve a system in terms of achievement that the organization values.
Human Systems Integration (HSI)	The total system engineering approach includes not only the equipment, but also the people who operate, maintain, and support the system; the training and training devices; and the operational and support infrastructure. Human Systems Integration (HSI) analysts assist program managers by focusing attention on the human part of the system and by integrating and inserting manpower, personnel, training, human factors, safety, occupational health, habitability, and personnel survivability considerations into the acquisition process.
Incentives	Incentives are provided by an organization to influence people's behavior. Incentives ensure or reward desired performance.
Instructional Analysis	The procedures applied to an instructional goal in order to identify the relevant skills and their subordinate skills and information required for a student to achieve the goal. (See also Instructional Goal).
Instructional Goal	The objective of instruction; what the learner must know or be able to do at the conclusion of the instruction. (See also Instructional Analysis).
Instructional Interventions	Interventions (solutions) identified from an analysis that are associated with skills / knowledge gaps.
Instructional Systems Design (ISD)	A systematic approach to developing training or instruction that involves five phases: analysis, design, development, implementation, and evaluation. Data from one phase serves as input for the next phase. For example, analysis outputs enlighten subsequent decisions in the design process.

Term:	Meaning:
Interventions	The recommendations that are the outcomes of a performance analysis; known as interventions or solutions.
Interview / Focus Group	A data collection strategy in which oral questions are asked of individuals or small groups of individuals to gather relevant information. Can take place face-to-face or over the telephone.
ISPI	International Society of Performance Improvement (**NOTE:** Certifying body for the professional certification, Certified Performance Technologist (CPT)
Job	The formal title of a position (same as job title); also used to include specialty (e.g., Machinery Technician on 270').
Job Aids	A storage place for information other than human memory. Job aids are guides that support performance by helping members perform tasks that they do infrequently, are too complex to memorize, or that are comprised of steps that are critical. Examples of job aids range from simple checklists, to document templates, to aviation repair procedures. Job aids may either supplement or replace training.
Job aid analysis	A type of analysis that involves two steps and provides two outputs: 1. Determination as to whether a job aid is appropriate to support performance of a specific task (given environmental, ergonomic or social constraints) or whether that task must be trained to memory. 2. Determination as to whether job aid can stand alone or it requires extensive or introductory training.
Job aid with extensive training	One possible outcome of a job aid analysis. Job aid with extensive training means the job aid must be used as a training aid and supported by extensive training (i.e., introduction and context, practice, repeated practice, fading, shaping and backward chaining).
Job aid with introductory training	Another possible outcome of a job aid analysis. Job aids with introductory training require relatively little training. It should be sufficient to introduce the job aid, demonstrate how it is used, and provide initial cueing and practice.
Job Analysis	A process used to determine exactly what is included in a particular job and exactly how a job is supposed to be done. Typically, it includes work by subject matter experts who distill a job into a set of functions consistent with major accomplishments and then further chunk the functions into tasks and task elements; type of performance analysis that determines the duties and tasks that are, or should be, performed by personnel occupying a given type of billet or fulfilling a given function.
Job Task Analysis (JTA)	The process of describing jobs based on the organization or task data obtained from incumbents through task inventory surveys. Program and Training Managers use the resulting information to make training decisions (i.e., job aid task, train task, do not train task, train task on-the job).

Term:	Meaning:
Knowledge	Being able to accurately recall information or explain where to find the information with minimal search time (the source instruction or reference). Recalling information and finding information with minimal search time are the building blocks for higher order performances. What has to be memorized and what can be left to the open-book real world are contextual decisions and will depend on task-specific characteristics such as frequency, timing, criticality, complexity, etc.
Knowledge Management	Field of study concerned with the desire to create a culture in which knowledge is paramount. Knowledge moves throughout the organization, hopping boundaries and transcending turf. Coast Guard e-Learning is working to attain this culture; CG e-learning is defined as "Growing, using, and moving knowledge using electronic means where we need it and when our people want it."
Learner Analysis	(Also known as Audience Analysis) study that describes the nature of the worker or students. The determination of pertinent characteristics of members of the target population. Often includes prior knowledge and attitudes toward the content to be taught, as well as attitudes toward the organization and work environment.
Level 3 Evaluation (external evaluations)	The third level of the Kirkpatrick evaluation model assesses behavior back on the job. Level 3 evaluations seek to determine if changed attitudes and learned skills and knowledge are resulting in the performance the Coast Guard desires on the job.
Life-Cycle Costs	Expenditures for each year of the project, to include the non-recurring costs plus the annual recurring costs; a 3% annual rate of inflation had been included in the final computation.
Manpower Studies	A manpower study looks at factors impacting the manning of a system or subsystem. Manpower factors are those job tasks, operation/maintenance rates, associated workload, and operational conditions (e.g., risk of hostile fire) that are used to determine the number and mix of military and civilian manpower and contract support necessary to operate, maintain, support, and provide training for the system.
Mean	Measure of central tendency; the arithmetic average for a group of numbers that is calculated by adding all of the values and dividing by the total numbers
Means	The way in which we do something. They are the processes, activities, resources, methods or techniques we use to deliver a result.
Mega Planning	Planning focused on external clients, including customers/citizens and the community and society that the organization serves.
Mega Thinking	Thinking about every situation, problem, or opportunity in terms of what you use, do, produce, and deliver as having to add value to external clients and society; same meaning as strategic thinking.
Motivation	Motivation is the personal desire to perform. It is comprised of both value and confidence. Value is knowing why desired performance is important and confidence is the belief by the member that he/she can do it.

Term:	Meaning:
Motivation/Incentives (M/I) Interventions	Recommendations for increasing the performer's personal desire to perform; aids to help performers in seeing the desired performance is important, performance supports, tools, training etc. to increase performer confidence, new incentive program based on performer input for what would be motivating.
Needs	The difference between the desired results (optimals) and the current results (actuals). Needs differ from wants in that needs are based on identified performance gaps, whereas wants have a personal value/preference attached that may or may not be linked to a performance gap or clear performance.
NPP Front End Analysis	New Performance Planning FEA: This is used to analyze new starts--different performance expectations for a new vessel, for example, or a new policy. NPP FEA defines and describes major accomplishments, tasks, task steps, sub-steps and the positive influences required to support optimal performance for a newly created job, a new piece of equipment, a new system – any new start in the organization. If performance intervention is recommended, it will also include detailed task analysis required to develop training/performance support products.
Occupational Analysis (OA)	A "snap shot" of the world of work of an occupation; refers to a number of procedures to measure the job structure of an occupation; in most organizations these procedures are referred to as "job analysis' – however, analysts for most military organizations examine job families such as those in the Coast Guard enlisted rating structure.
Off-the-Shelf (OTS) Analysis	Off-the-shelf analysis is a process used to evaluate commercial-off-the-shelf (COTS) or government-off-the-shelf (GOTS) training and performance support products for possible use in a Coast Guard program or as potential stand-alone products the Coast Guard could procure or buy. The procedures for analyzing COTS and GOTS products are found in COMDTINST 1554.1.
O*Net	Stands for Occupational Information Network and is both an occupational classification system and a comprehensive database of job descriptors.
Opportunity	An opportunity presents itself as a condition where, due to advances in capability, you may increase your performance expectations above where they are typically set. Examples are new policies, programs, initiatives, and technologies or cases in which a new requirement must be established. Analysis efforts should focus on unearthing and operationalizing the details of optimal perspectives, skills, and knowledge their customers envision.
Optimals	The desired state. The directions the organization and its people are trying to go. Specifics about broad goals and desired skills, knowledge, and perspectives as they relate to a particular task or organizational problem.

Term:	Meaning:
Outputs	Statements of accomplishment. They are **NOT** behaviors. They are **NOT** increments of knowledge. They are statements of what the performer produces on the job. (See Accomplishments).
Paradigm	Describing behavior to the operant level. A notational model for recording the operants a student must learn; an expression of operant sequence and the discriminations and generalizations to be made; operants expressed as the smallest meaning increments of behavior
Perform/do not perform	Used to determine the percent of people in the job or rating who are performing the task (JTA).
Performers	For the purpose of JTA, those identified as the sample or whole target population taking the JTA survey.
Performance	Summary term used to indicate behaviors and the accomplishment that is produced by those behaviors.
Performance-based Training (PBT)	The training process that trains/job-aids the actual accomplishments and behaviors the student is to produce or do on-the-job; the content of PBT is derived from an analysis of the required job performance; the training curriculum, courses, modules and units are grouped by accomplishments and behaviors (tasks), not by topics or competencies
Performance Analysis (PA)	A performance analysis is often used interchangeably with needs assessment and is a systematic process used to determine what is causing ongoing performance problems or to anticipate performance opportunities and potential problems in new acquisitions and the rollout of new systems. The outcome of a PA is a comprehensive list of recommended solutions to eliminate any performance gaps. New or improved training, equipment, processes, policy, and revised incentives are some examples of what could be included in a recommended solution system. PAs could take anywhere from a few days to several months to complete, depending upon their complexity and the resources available. Analysts consider a PA's scope to best determine what level of analysis is most appropriate. PA is the process by which we partner with clients to figure out how to help them achieve their business goals.
Performance Consultants (PC)	A consultant working in partnership with analysts and clients to identify barriers, explore a suite if solutions, and work collaboratively to obtain new procedures, technology, behaviors, and ideas adopted.

Term:	Meaning:
Performance Context Analysis	Analysis that yields information concerning the actual (physical) environment or setting where the learners will successfully use the skills they are learning; it includes physical and social aspects of that environment.
Performance Deficiency	Below standard accomplishment because of inadequate behavior.
Performance Gap	A performance gap exists when optimals the desired state, differ from actuals, or the current state of performance.
Performance Qualification Factor	Ranking factor of OA Occupational Analysis (OA) survey tasks based on percent of lowest pay grade performing the task and average relative time spent on the task.
Performance Qualification Recommendations	Specific recommendations on what changes may occur to EPQs based on conclusions drawn from statistical analysis of completed surveys.
Performance Support	Any tool, device, or program that exists to help workers perform their jobs. Examples of performance supports are job aids and EPSSs.
Performance Technologist (PT)	One who applies systematic, data-driven approach to improving human performance. A PT should normally be working toward becoming a Certified Performance Technologist.
Performance Technology Center (PTC)	Performance Technology Center located at TRACEN Yorktown VA
Problem	A deviation from standard; less than adequate performance present at the organizational, unit, or individual job level; a problem manifests itself as the inequity between what you seek (optimal) and what you have (actual), therefore a shortfall (gap).
Performance Requirements	The statements that describe specific outcomes with associated criteria and measures; typically promulgated via Commandant Instructions, but sometimes articulated in other program capstone documentation.
Rating Force Master Chief (RFMC)	The Headquarters Ombudsman for individual ratings focusing on structure, qualifications, performance and training. Also the prime customers for OA data.
Rating Review	An activity, normally performed by a Rating Manager or RFMC to determine health of the rating, including assessing structural concerns for the rating size, grade distribution, flow, and performance qualifications.

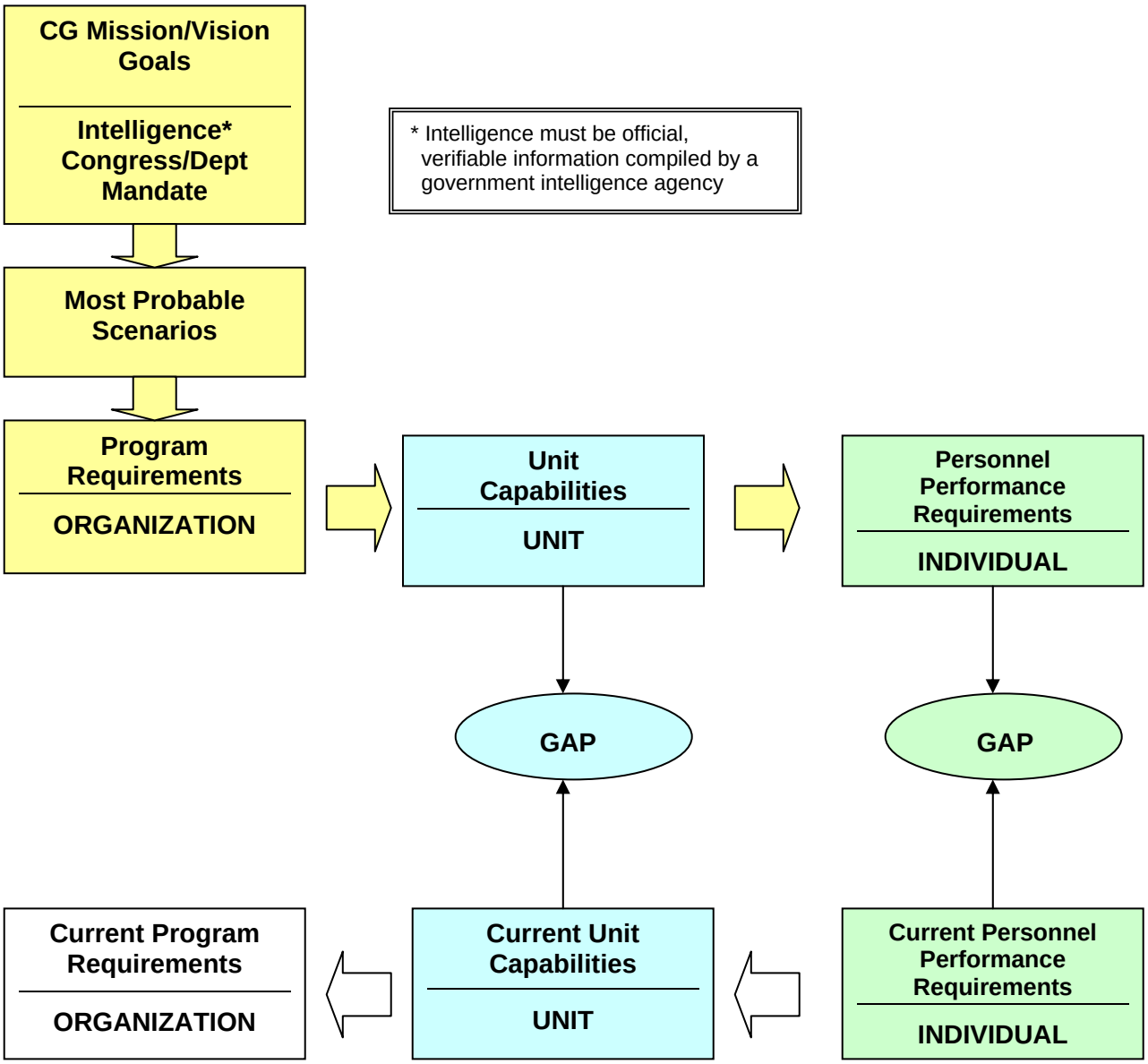
Term:	Meaning:
Request	The initial stimulus for a possible project to aid client in solving a problem or developing a specified perceived need (e.g., help us plan for a new job we are creating).
Request for Analysis	The initial stimulus for a possible project to aid client in solving a problem or developing a specified perceived need (e.g., help us plan for a new job we are creating).
Return on Investment	ROI takes a CBA to the next level of evaluation and may be conducted when a monetary value can be applied to the benefits. ROI is a formula and is calculated using the program's benefits and costs: $ROI = \frac{\text{monetized benefits} - \text{program costs}}{\text{program costs}} \times 100$
Root Cause	The reason attributed to a gap or condition where actual and optimal are not the same.
Root Cause Analysis	Study to determine what gets in the way of individual and organizational performance and why. Cause analysis should result in recommended actions that address specific categories of causes, such as: motivational, environmental, skills/knowledge, equipment, and assignment & selection. The idea is that there is a different way to address problems that have different causes. Cause analysis helps ensure that the solution will solve the problem.
Scope	Determining the boundaries of a project. Answering questions like: How big is the problem? How many people are available to answer the survey? How much is it going to cost? How long will it take? Etc.
Skills	Ability to behave in ways associated with successful job performance.
Skills and Knowledge (S/K) Intervention	A strategy (or strategies) such as training, electronic performance support systems, job aids, better/quicker access to publications, etc. that reduces or eliminates gaps in performer's S/K.
Soft Skills	Terminology for behaviors that is open to wide interpretation and not specific enough for purposes of an FEA (e.g. understand, appreciate, some, attitude, leadership).
Solution System	An array of interventions (solutions) that, when strategically combined, increase human performance in the workplace. Decisions about the nature of a solution system are based on causes and drivers and determined during performance analysis.

Term:	Meaning:
Specialty	A more specific title within the generic title used to represent more specialized functions (e.g., Johnston Boiler technician is a specialty within MK job title).
Stakeholders	People who have a stake (an interest) in the outcomes of an analysis study, such as a Diagnostic or NPP FEA. JTA, CBA, etc. The findings may have an affect on them or their work.
Standard Operating Procedures (SOP)	Standard Operating Procedures are intended to prescribe steps, methods, or procedures to provide consistency in results.
Statement of Work (SOW)	The legal document that describes to the contractor precisely the level of effort and products required from their efforts on the project. Contractors are responsible for completing all requirements in the SOW and using the methodology prescribed in the SOW. A SOW can only be changed through a formal modification process.
Strategic Needs Assessment (SNA)	SNA (term used interchangeably with performance analysis) is the formal, systematic and data driven process of: • Articulating desired outputs based on given organizational or program capstone documents such as mission, vision, most probable scenarios, intelligence and criteria. • Comparing desired outcomes to actuals (current outcomes) to determine gaps at the organizational or unit level. Analyzing gaps as to their scope, magnitude and priority for resolution based on the cost to close the gap as compared to the cost of ignoring it. • Identifying root causes for gaps & recommending potential solutions for closing those gaps. • Implementing the solutions. • Evaluating results. **NOTE:** A needs assessment places gaps in priority order for resolution based on the cost to meet the need as compared to the cost of ignoring it.
Subject Matter Analysis	Conducted through interaction with subject matter experts and documents to derive essential information that is used as the basis for training programs and job aids. Seeks the nature and shape of bodies of knowledge that employees need to possess to do their jobs effectively.
Subject Matter-based Training	The training process that starts with the premise that a certain topic or body of knowledge will be taught, as opposed to performance-based training, which derives content from an analysis of the desired performance; typically the increments of subject matter-based training are grouped by topics and competencies.
Subject Matter Expert (SME)	A SME is a person who is identified as the most knowledgeable regarding a specific subject or piece of equipment; this is not necessarily the person with the most practical experience in the subject or the person who can best employ the piece of equipment – that would be the AP.

Term:	Meaning:
Summative Evaluation	Evaluation designed and used after an instructional program has been implemented and formative evaluation completed. The purpose is to present conclusions about the worth of the program or product and make recommendations about its adoption or retention.
Survey	A method of collecting information from the field by use of questionnaires or telephone interviews. PTC has a great online resource for help creating surveys.
Survey Sample	The optimum sample size is the total group. When the total group cannot be surveyed either because of costs, time, or other constraints, a sample is drawn to represent the total. Categorize the population into separate groups (i.e., length of time in position, pay grade, geographical location, unit, or type of equipment used); then select a certain number from each category in approximately the same proportions as in the real population. The purpose of care in sample selection is so the analyst can say the findings are true not just of the individuals who completed the survey, but of those who did not as well.
Sustainment	The process of keeping up performance interventions once they are implemented. This includes the provision of means and funds for keeping interventions updated and current.
Supervisor	For the purpose of JTA, those identified as people who supervise the performers.
Systematic	Characteristic of analysis efforts. Systematic efforts are data driven and are defined, orderly processes by which output from one phase serves as input for the next.
Systemic	Having a focus on relationships within an organization and on how change in one component influences others. Recognizing the individual, team and organizational aspects of performance and the need for solution systems predicated on causes.
Systems Approach	Examines those factors, both internal and external to the organization, that impact human performance. Also referred to as Systems Thinking.
Target Population	The workers an analysis project will influence.
Task	A discrete unit of work performed by an individual. It usually comprises a logical and necessary step in the performance of a job duty, and typically has an identifiable beginning and ending.

Term:	Meaning:
Task Analysis (TA)	Detailed study performed to define the actions of master performers. Usually based on observing and interviewing accomplished performers as they do their work. Often results in a detailed list of activities, elements, and sub-elements in carefully specified order. TA considers both overt (can be observed) and covert (thinking and decision making skills that can't be observed) behaviors.
Task Force	A group of SMEs and APs both internal to the Coast Guard and external, along with equipment or system designers and builders who work in a small group to gather relevant information on anticipated performance. Can take place face-to-face or over the telephone.
Train, no train, job aid, job aid with training, OJT recommendations	Outcomes of JTA.
Training	An intervention for bringing about a change in behavior when a lack of skills or knowledge is present.
Training Center	One of five Coast Guard Training Centers (Air Technical Training Center, CG Academy, Cape May, Petaluma and Yorktown)
Training Requirements Analysis	A process of examining current work-site performance by developing a comprehensive task inventory and comparing the results to one of the following choices: (1) an existing curriculum of a currently offered Coast Guard course, (2) an off-the-shelf course form another government source (GOTS), (3) an of-the-shelf course of an existing commercial source (COTS). Other possible uses of a TRA are to use the task inventory to update and revise existing curriculum, or to convert existing curriculum to an alternate delivery modality.

Appendix A: Coast Guard Alignment Process



Appendix B: Request for Analysis Form

Request for Analysis (RFA)	
Date of Request:	Tracking Number:
USCG Program Manager:	Program POC:
Program Office Symbol:	Telephone Number:

Submit Form Electronically
IAW Training System Analysis Standard Operating Procedures (SOP) this form is required when:
a) there is a problem with an existing system and/or personnel performance or
b) there is a new platform/system/policy which may require new personnel performance skills

1. Describe the problem or new platform/system/policy which may require new personnel performance skills. Identify the impact to mission requirements/accomplishment?

2. What Doctrine; Policy; Directive(s); Tactics, Techniques, and Procedures (TTP); and current Commandant initiative(s)/hot item(s) are an impact to or are impacted by this problem?
Provide the applicable section/paragraph (s) for each approved reference document listed below.

CIAOs -
DOG -
COMDT Instructions, Manuals, Notices -
ALCOASTS -
Standard Operating Procedures -
Capstone Documents -
Operational Requirement Documents -
Technical Manuals -
Other (i.e. DRAFT documents) -

3. What is the Program Office's expected outcome from this analysis (i.e. attending formal courses, new/improved job aids, new/changed policies, procedures, processes, etc.)

For CG-1321 Use

4. How much funding does the Program Office have to analyze this problem? Once analysis is complete, is there available funding (if needed) to implement suggested solution?

5. How many USCG personnel are impacted by the problem or new system/skill? (It may be helpful to indicate the rank/grade of the personnel, the career field, etc.)

Officer -
Enlisted -
Civilian -

6. Describe how personnel are impacted by this problem or new performance.

7. Is there a documented financial impact resulting from this problem or new performance?

8. Describe any potential cost savings (dollars and/or time) by addressing this problem or new performance.

9. Is the analysis of the problem or new performance time critical?
Why? (Is there an implementation, retro-fit, directive or new policy deadline to meet?)

10. Is there documented evidence (data) identifying inability of personnel to complete mission due to the problem or new performance?
Explain or summarize. (Are there Mishap reports, are cycle times impeded, CASREPs)

11. Is the USCG Program Office and the stakeholder one in the same?
If multiple stakeholders, which is the primary stakeholder?

Appendix C: RFA Scoping and Tasking Form

RFA Scoping & Tasking Form

Date of Scoping:	Project Name:	Program Office:
CG-132 Signature and Date of Tasking		Program POC:
Organization Tasked:	Tracking Number:	Program POC Telephone Number:
Analysis POC:		CG-1321 Rep:
Analysis POC Telephone Number:	Anticipated Completion Date:	CG-1321 Rep Telephone Number:

The Tasking Sheet includes the Project's Description of Need/Issue, the CG-1321 Rep's determination of project validity, a link to the Commandant's Strategic Goals, funding information, and time criticality.
In the last block the CG-1321 Rep recommend the Level/ Type of Analysis to be conducted.

Description of Need/Issue:
Validated Requirement:
Validated Link to Commandant's Strategic Goals:
Funding Information:
Time Criticality:
Recommended Level/ Type of Analysis:

Appendix D: Analysis Methodologies

ANALYSIS	CG-132 can normally tailor the scope and breadth of these analyses to meet client needs.	
TYPE	**Description**	**Typical Outcome**
Strategic Needs Assessment	The systematic and data driven process of: 1. Articulating desired outcomes based on given organizational or program capstone documents such as mission, vision, most probable scenarios, intelligence and criteria. 2. Comparing desired outcomes to actual to determine gaps at the organizational or unit level. 3. Analyzing gaps as to their scope, magnitude and priority for resolution based on the cost to close the gap as compared to the cost of ignoring it. 4. Identifying root causes for gaps and potential solutions for closing those gaps.	• Program or mission requirements • Description, cost benefit analyses for recommended solutions at the organization or unit level This level of analysis will not normally result in a training program but a list of requirements and (if applicable) recommended solutions to address the most significant program or mission problems, including training. Additional analysis may be required to develop solutions.
Performance Systems Analysis (PSA)	This is the practice of looking at entire systems (even if analyzing only one part of the system). PSA is a systematic and data driven process of analyzing human performance and systems operation and maintenance. The PSA looks at the work expected to be created by a major acquisition, new or expanded mission, reorganization, complex systems and infusion of new technologies. The PSA is an overarching (umbrella) macro-analysis that focuses on human performance in organizations and complex systems. A PSA may include all elements of the ADDIE model, including multiple analyses and coordination with other Coast Guard agencies to obtain manpower and Human Systems Integration (HSI) studies. A PSA is typically a multi-year process.	• Analyses of components of the system including the new and unique systems or subsystems • Major accomplishment, task and step-level data required for development of performance interventions • Recommendations for immediate and sustainment performance interventions • Review of existing training • Interventions necessary to prepare initial performers on the system • Interventions necessary to prepare performers over the life cycle of the system
Front End Analyses (FEA) **(Diagnostic) or (New Performance Planning)**	An analysis at the individual level can only be conducted if validated mission / program requirements exist for the job or position being analyzed. Diagnostic FEA: problem-solving analysis procedures used in projects when existing performers are not producing current accomplishments satisfactorily; the procedures find the deficiency (gap) in performance at task level as well as the cause and solutions for closing the performance gap. New Performance Planning FEA: The type of analysis that defines and describes major accomplishments, tasks, task steps, sub-steps and the positive influences required to support optimal performance for a newly created job, a new piece of equipment, a new system – any new start in the organization. If training/performance support is recommended, it will also include detailed task analysis required to develop training/performance support products.	• Individual performance requirements • Deficient tasks & recommendations to improve performance/close gap • Description of major accomplishments, tasks and sub-steps; recommendations for improving performance at the job or position level

Training Requirements Analysis (TRA)	A systematic review to determine the most effective and efficient training solutions to eliminate or reduce validated skill and knowledge gaps.	List of recommended solutions to teach validated KSA gaps.
Job Task Analysis	A systematic process to determine tasks, and if needed, the steps associated with the conduct of a validated job or position, for which skills/knowledge gaps have been determined to exist.	Lists of tasks, and if needed, the steps and most effective means of developing individual competencies (train, no-train, OJT and Job Aid recommendations.
Cost-Benefit Analyses (CBAs)	A systematic review of validated skill and knowledge gaps to determine the most effective and efficient training solutions to eliminate or reduce them.	Description, cost comparisons, cost benefits comparison, and ROI for training solutions

NOTE: Analysis efforts focusing on validating an existing intervention to determine the extent to which it is achieving the desired results is addressed in the Evaluation SOP.

Appendix E: Client/Sponsor Project Satisfaction Feedback Form

Administered by:

IF Analysis conducted by:	Then Feedback and Validation of survey will be administered by:
CG-1321 staff	CG-1321
PTC Analysts	PTC Analysis Branch Chief, TRACEN Yorktown
TRACEN analyst	TRACEN Analysis Branch Chief
Performance Consultant	CG-1321 or their CG supervisor, as appropriate
Contracted Personnel	COTR at CG-132, PTC or TRAPET as appropriate
Auxiliary Personnel	CG-1321 or PTC as appropriate

Survey Distribution	Any survey distribution methodology can be used to collect the client satisfaction feedback such as, mailing a paper-based survey, conducting phone interviews or using an electronic tool such as EFM/Pursues. The survey should be distributed to the client(s) and any other major stakeholders no later than 30 days after the date of the out brief or the report. It is option to include any secondary user of the report as part of the survey population.
Survey Results	All survey results should be kept based on the operating procedures for your group. However, it is strongly recommended that the results be kept for trending purposes.
Data Collection	The questions used for evaluating satisfaction with the analysis process need to be consistent. Therefore, the person constructing the survey must be sure to include all of the following questions and data points. Asking the survey participates the same questions, provides consistency to the collected data. Consistent, validated data can compare and trended so that best practices and areas of concern for the analysis process can be more easily identified
Constructing the Survey	The following data points and questions should be included. Best practices for developing surveys should always be followed. See Training Systems Evaluation SOP, Appendix J – Survey Evaluation Manual and Appendix K – How to design a Questionnaire in EFM/Perseus for more details.
Survey Content:	Include all of the following questions and data point in the Client Satisfaction Survey:

Title:_____ RFA Tracking Number: _____

Person Who Conducted the Analysis and Unit: _____

Directions for Evaluation Criteria:

Choose:	When you what to indicate that:
Yes	all of the criteria in the description block are included and are clearly articulated
No	one or more of the criteria are not included or if more than half require further explanation

Project Planning

ITEM	QUESTION	EVALUATION	
Scope	Was the analysis conducted in accordance with the agreed upon scope of your project?	○Yes	○No
Budget	Was the analysis completed at or below the agreed upon budget?	○Yes	○No
Progress	Did you receive adequate progress reports to remain aware of the analysis?	○Yes	○No
Timeline	Was the analysis completed within the agreed upon timeline?	○Yes	○No

What would make the analysis process more useful to your program?

_____

_____

Please enter any additionally Comments you have regarding the analysis project planning and/or Alignment, Data Collection, or data Analysis phases of the project:

_____

_____

_____

_____

Analysis Recommendations:

ITEM	QUESTION	EVALUATION
Relevance	Did the recommendations appropriately consider and address your originally stated problem or opportunity?	○Yes ○No
Resources	Were the outcomes of this analysis used to justify resources by your program, (Resource Proposals)?	○Yes ○ No
Usefulness	How many recommendations were made in the analysis?	
Usefulness	How many recommendations have you implemented? Comment below as to why you recommendations were not implemented.	

What would make the out-brief process more useful to your program?

_____

_____

Please enter any additional comments you have regarding Recommendations and/or the analysis report Out-briefing process:

_____

_____

_____

_____

_____

Demographic Information:
What best describes your relationship to this project:
Please select only one.

- o Primary Client (Program providing funding)
- o CG-1321 Project Liaison
- o Secondary Stakeholder

Other, please explain:

Appendix F: Analysis Validation Requirements Checklist

Analysis sources shall use this checklist to evaluate analysis quality. Analyses should be conducted in accordance with the default methodologies provided in this SOP. They must also be consistent with the principles included in this checklist.

When other methodologies are approved by CG-132, this checklist will be used to ensure basic human performance technology and educational research principles are adhered to.

Explanation of Evaluation Criteria:

Yes	Indicate **Yes** if all of the criteria in the description block are included and are clearly articulated
No	Indicate **No** if one or more of the criteria are not included or if more than half require further explanation
N/A	**Not Applicable**. This item is not required for this analysis. Justification for this determination should normally be attached.

Title:_____ RFA Tracking Number: _____

Person Who Conducted the Analysis and Unit: _____

ITEM	DESCRIPTION	EVALUATION
Charter (if appropriate to project scope)	The charter should be a stand alone document normally included as an appendix	○Yes ○No ○N/A
Problem Statement	Includes a clear statement as to the gap being analyzed or the opportunity to which this effort was directed as well as thorough explanation of the symptoms and indicators of the problem	○Yes ○No ○N/A
Drivers	These are the pressures, incidents, near misses or initiatives that led to this particular problem being addressed now	○Yes ○No ○N/A
Alignment with Organizational Vision, Mission, Goals	The linkages between this effort and Coast Guard and program vision, mission, goals and requirements are clearly articulated	○Yes ○No ○N/A
Alignment with Program Goals, Objectives, Standards	The linkages between this effort and the Program (or client's) goals, objectives, standards must be clearly articulated	○Yes ○No ○N/A
Methodology	A brief explanation of the approach taken, models used, data collection techniques, etc. This should specifically detail reasoning, applicability to project scope and limitations	○Yes ○No ○N/A

ITEM	DESCRIPTION	EVALUATION
Data Summary / References	Although it is not normally practical to include raw data, a sufficient summary of the data shall normally be included as an appendix as well as a list of references and actions taken	○Yes ○No ○N/A
Performance Analysis (if appropriate to project scope)	(Desired State) Individual Performance requirements ID'd and link articulated via unit capabilities and program requirements (Optimals or What Should Be)	○Yes ○No ○N/A
	(Current State) Individual Performance requirements ID'd and link articulated via current unit capabilities and program requirements (Actual or What Is)	○Yes ○No ○N/A
	(Gap Analysis) Needs (or the difference between the current and desired state) at each level are articulated and quantified as to their size and importance.	○Yes ○No ○N/A
Root Cause Analysis (if appropriate to project scope)	Root causes are ID'd for each gap. Each cause should be adequately described and categorized as either Knowledge & Skills; Motivation & Self Concept; Performance Capacity; Expectations & Feedback; Tools & Processes; Rewards, Recognition & Incentives.	○Yes ○No ○N/A
	Adequate explanation is provided to show that root causes are directly linked to previously ID'd gaps.	○Yes ○No ○N/A
Recommendations	A clear presentation of various solution systems that are adequately described with explanation, estimated cost, potential barriers to implementation, and strengths.	○Yes ○No ○N/A
	Adequate explanation is provided to show that solutions are directly linked to previously ID'd root causes.	○Yes ○No ○N/A

Training Requirements Analysis (if appropriate to project scope)	A brief explanation of the linkages between knowledge, skills and abilities (KSAs) needs and organizational / program requirements via the analysis that validated the training needs.	○Yes ○No ○N/A
	Existing CG courses are ID'd (if appropriate) to close training needs with explanation, estimated costs to modify courses, throughput requirements, potential barriers to implementation, and strengths.	○Yes ○No ○N/A
	Existing DOD and other agency (e.g., FLETC) courses are ID'd (if appropriate) to close training needs with explanation, estimated costs or resource requirements, throughput requirements, potential barriers to implementation, and strengths.	○Yes ○No ○N/A
	New courses are ID'd (if appropriate) to close training needs with explanation, estimated development costs, throughput requirements, potential barriers to implementation, and strengths.	○Yes ○No ○N/A

Comments:_____
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_____
_____

Completed By: _____ Date:_____

Reviewed By: _____ Date:_____

Send Copy to (CG-1321)

Appendix G: Sample Plan of Action & Milestones (POA&M)

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: CG-1321
Phone: (202) 267-2438
Fax:
Email:

1500

MEMORANDUM

From: CG-1321 Reply to Attn of: CG-1321

To: *Client or Program supporting Analysis*

Thru: As appropriates

Subj: *Analysis Title*

Ref: (a) Volume 2, Analysis, Training System Standard Operating Procedures
(b) *Analysis* Report *date*
(c) Analysis Out Brief at CGHQ *date*

1. Purpose. This Plan of Action and Milestones is to documents the lead office(s) responsible for enacting recommendations outlined in references (a) and (b).

2. Background. As described in reference (c), the outcome of any analysis is to identify barriers to performance and recommend solutions to problems or realization of opportunities. Analysis leads to a solution *system* for a problem or opportunity. Every effort should be made to implement as many of the recommended solutions as agreed to in the out-briefing as possible, because concentrating exclusively on only one solution may not entirely resolve the problem.

3. Actions. As identified in enclosure (1).

4. My points of contact for this action plan are: *list POCs*.

#

Enclosure: (1) Action Plan – *Title of Analysis*

Copy: *Unit Completing Analysis and primary and/or secondary stakeholders*

Appendix H: Design and Development Resource Allocation Procedures

Introduction

This section describes how a recommended solution for a design and development project is requested, validated, prioritized, assigned, and managed by CG-132.

Target Audience

Headquarters Program Managers shall use the enclosed procedures to develop and implement validated solutions.

Background

There are several organizations in the Coast Guard that are capable of providing instructional design and development services, such as the Performance Technology Center (PTC), located at TRACEN Yorktown or the Instructional Systems Design (ISD) team at TRACEN Petaluma. These TRACENs can manage several ISD projects simultaneously. If unable to conduct the work themselves, they also have contracting mechanisms in place to bring in additional resources.

Instructional Methodology Selection

The POA&M resulting from a approved analysis project may recommend more than one instructional strategy, such as traditional leader led course or any variety of alternative delivery methods such as:

- Electronic Performance Support Systems (EPSSs)
- Computer-based training (CBT)
- Web-based training (WBT) via Intra/Inter/Extranets
- Computer assisted, self-paced instruction (CAI)
- Structured on-the-job training (S-OJT) modules and tools
- State-of-the-art simulators or virtual reality training
- Interactive teleconferencing training
- Videos and workbooks
- Electronic workbooks
- "Blended" solutions (a mixture of different instructional strategies and performance support tools required to solve or minimize the identified performance gap. An example of a blended solution could be a CBT/WBT, PDA for data collection and using an EPSS containing links to pubs and job aids)

NOTE: Whenever possible, every effort should be made to resource internal Coast Guard ISD organizations. However, keep in mind that every ISD organization may not have equal design and development capabilities for alternative delivery methods. In such cases the program manager should verify with the ISD resources for recommendations and/or assistance.

Coast Guard ISD Organizations

The Coast Guard maintains five ISD organizations, they are:

- TRACEN Yorktown - Performance Technology Center (PTC)
- TRACEN Petaluma
- TRACEN Cape May
- Air Technical Training Center (ATTC)
- Coast Guard Academy (CGA)

NOTE: The PTC and TRACEN Petaluma maintain a limited (but ever increasing) ability to design and develop various training solutions. Additionally, contractors are available for projects outside the Coast Guard's scope and ability.

Procedures

When the client is ready to proceed with the recommended training solutions from the approved analysis, follow the procedures below

Step	Who	What
1	Client	Notify the CG-1321 representative that the program wants to move ahead with the recommended training solution(s) from a approved analysis
2	CG-1321	Establish contact with the selected ISD organization to set up a pre-alignment meeting. The objective is to identify which training solutions to pursue based on time, cost, developer resources, and ISD capabilities of the selected Coast Guard ISD organizations.
3	Client	Based on the results of the pre-alignment meeting, if the client desires to move forward with the project, the client must transfer funds to selected Coast Guard ISD organization.
4	Selected ISD Organization, the Client, and CG-1321	The selected ISD organization coordinates the alignment meeting with the client, CG-1321 representative, and other stakeholders. The ISD organization now has responsibility for the design & development training solution.

Appendix I: Performance Analysis Alignment Tool

The first step in conducting any analysis will normally be to ensure alignment. Alignment with the client ensures that expectations are met with regards to the scope of the project, resources available and time to complete. Alignment also enables the analyst to verify that a clear link can be articulated between the activity being supported and the organization's pursuit of its goals and objectives AND that the need to address this particular issue has been prioritized relative to other pending needs.

<table>
<tr><th>Step</th><th>Who</th><th>Action</th></tr>
<tr><td>1</td><td>Analyst, Clients, Program Managers</td><td>Research:
Collects sufficient information from stakeholders, review extant data, RFA, etc.
Reviews opinions and research conducted by other programs. Have these problems ever been reviewed before?
Discusses dissenting opinions with other programs to see if their concerns have been alleviated or have changed. If not, understand
<table><tr><th colspan="4">PHASE 5 -- Evaluation</th></tr><tr><th>What:</th><th>Why:</th><th>When:</th><th>Who:</th></tr></table>
why they think the way that they do. Are their opinions based on objective data?</td></tr>
<tr><td>2</td><td>Analyst</td><td>Lists the references reviewed that have had an impact on the determinations supported by the report.</td></tr>
<tr><td>3</td><td>Analyst</td><td>Describes the purpose of the project. What is this project trying to accomplish?</td></tr>
<tr><td>4</td><td>Analyst</td><td>Describes project background:
Articulates a clear problem statement that describes the (Why now?) drivers, other “drivers” or those pressures, incidents, near misses or initiatives that led to this particular problem being addressed now.
Considers the population believed to be primarily impacted, factors or forces that will encourage and challenge goal accomplishment regarding the gap being analyzed or the opportunity to which this effort was directed.
Provides a thorough explanation of the symptoms and indicators of the problem.
If appropriate, also provides a thorough discussion of other projects, studies or initiatives that impact this project.</td></tr>
</table>

Step	Who	Action
5	Analyst & Client	**Aligns with client:** • Provide an explanation of how this project is aligned within the larger context of Coast Guard desired outcomes. The NA should begin with a review of highest level vision and mission statement validated and available, usually official policy from the Commandant's Office or other, signed documents that have been subjected to a thorough concurrent clearance.

Appendix J: Data Collection Methods

When determining the source(s) and method(s) to collect data, the consultant or analyst must consider the following:

- Type of data desired
- Size and location of groups from whom data will be collected
- Resources available for data collection
- Cost and available funds
- Amount of time available

IF type of information required is:	**AND** sources of data include:	**THEN** possible collection methods include:
Organizational / Unit Level (SHOULD): Optimals Determine what **should** be done to achieve the desired or optimal performance results	Senior Leadership	Interview
	Benchmarking / Best Practices	Document Review Literature Review
	Managers/Supervisors of Accomplished Performers	Interview Questionnaire Focus Group
	Operational Reports	Document Review
	Accomplished Performers	Focus Group Observation
	Customers	Questionnaire
Organizational / Unit Level Actuals (IS): Determine what **is** currently being done to achieve the current performance results.	Managers of "Typical" Performers	Interview Questionnaire Focus Group
	Unit level leadership	Interview Questionnaire
	Operational Reports	Document Review
	Customers	Document Review Interview Questionnaire
	Program Manager	Interview Questionnaire
	Typical Performers	Interview Questionnaire Focus Group Observation

Appendix K: Rationale for Data Collection Methods

Type of Method	Advantages	Disadvantages
Interview/Focus Group: • A data collection strategy in which oral questions are asked of individuals or small groups of individuals to gather relevant information • Can take place face-to-face or over the telephone. Individuals involved may express job experiences, job approaches, attitudes, requirements and/ or barriers to performance	• Obtain information required to make a concise problem statement about the difference between what exists (current performance) and what management wants (what is desired) • A lot of information can be shared in a short period of time • Open to discovery of attitudes, opinions, issues, and facts not anticipated • Reactionary data • Provide for qualitative or descriptive data, not quantitative • Provides an opportunity to reply openly, and to expand on ideas • Can observe if face-to-face	• Labor-intensive • Higher cost per response • Tabulation of data is time consuming • Data analysis requires content analysis skill • Requires skilled interviewer for complete, unbiased data • Cannot ensure confidentiality • Need to ensure inter-rater reliability and consistency of method used to ask questions if more than one interviewer is used • Gathering or traveling to representatives from different geographical areas may be difficult
Document Review/ Literature Review: A data collection strategy in which the content of a document is systematically analyzed to obtain relevant information	• Sources of data consist of business documents, including management reports, paper documents, computer data, audiotapes, and videotapes; the organization's vision, mission, and strategic plan often provide information regarding both internal and external factors that affect performance; annual reports, marketing plans, sales reports, and employee surveys will provide valuable information • Provides access to operational and/or management data • Translates doc into SHOULD (desired) and IS (current or actual) performance • Provides information about the documents available to the performer	• Additional information usually required • Does not provide information about changes that have been instituted on the job (at the Unit and/or individual level) • Information is limited to data that is described by procedures and included in management reports, policy statements, Standard Operating procures or other types of documents at the organizational level

Type of Method	Advantages	Disadvantages
Observation: A data collection strategy in which master performers or typical performers are observed as they perform a task.	• When the population or random sample is relatively small • When it is important to denote deviations from required procedures • Provides an opportunity to observe job performance in the work setting • Able to see what is actually happening; no interpretation by a third party • Ability to make notes about the factors that enhance the performance, such as ease of information, and those that prohibit their performance, such as excessive noise or numerous interruptions	• Labor-intensive • High-cost • Provides data only on what can be seen • Observer may have an affect on job performance • Observation must be well planned in advance • Observer must be well trained
Questionnaire: A data collection strategy in which a list of relevant questions are presented to a large number of people (or to a representative sample of the target population for the analysis project). Can be conducted electronically or through the mail, telephone, or individual interviews.	• Well suited for collecting quantifiable data: How many people agree. How much overlap is there • Best when questions are lengthy or require the respondent to look up information or to think about his/ her response • Can reach large sums of people • Can reach people in a variety of geographic locations • When conducted electronically, easier to administer than other types of data collection means; can be easy to take • Present all questions in a consistent manner; answers aren't susceptible to any face-to-face interview biases • Cost less than other data collection methods • Able to ensure confidentiality • Easy to tabulate if closed-ended questions are used	• Difficult to construct, requires thorough knowledge of the situation before questions can be developed • No way to ensure the person who answers the questionnaire is the person it was sent to • Low response rate, can be a problem • No way to probe for more information • Time MUST be allocated for piloting of the questionnaire

Adapted from Robinson and Robinson (1995)

Appendix L: Performance Analysis Report

At the end of the performance analysis phase, the analyst shall present to the client a Performance Analysis Report outlining the gap between what IS (current or actual) and what SHOULD be (desired or optimal) for on-the-job performance. The analyst will seek agreement with the client on the report.

Statement of Problem or Opportunity: (from user input of Problem or Opportunity)

How much is it costing organization?

- Direct costs of the problem:
- Indirect costs of the problem:

Data collection methods used to analyze problem / opportunity:

- Interviews
- Document Review
- Focus Group
- Survey
- Etc.

Desired operational results:

- What specific outcomes does the program want to achieve?
- What does success look like?
- What specific measurements will be used to determine if these outcomes have been achieved?
- How will you know whey you have arrived at success?

Current operational results:

- What results is the program currently realizing?
- What measurements is the program using?

Desired unit / job results: (Depending on scope of scope of analysis)

- What must members do differently on the job if programs goals are to be met?

Current unit / job results: (Depending on scope of scope of analysis)

- What results are being achieved at the unit/job level?
- What do performers actually do on the job to achieve a performance result?

Describe gaps at:

- Operational level: (Depending on scope of scope of analysis)
- Unit level: (Depending on scope of scope of analysis)

  Individual level: (Depending on scope of scope of analysis)

Appendix M: Root Cause Determination Guide

1. Review Performance Analysis Report

2. Data collection considerations. This guide is designed to assist the analyst to frame questions that will reveal the root causes. The determination of cause is probably one of the most important steps in the entire process. The analyst can only determine if it is a systems problem, process problem, human resource problem, training problem etc, through an in-depth analysis of the root cause or causes. When collecting data on root causes, the analyst should consider the following:

- Who are reliable sources of information?
- What methodologies should be used to collect the data?
- Size and location of groups from whom data will be collected
- Resources available for data collection
- Cost and available funds
- Amount of time available

3. Determine Root Causes

A. Lack of Skills and Knowledge: Performer Responsibility

Data sources: Performers, Supervisors, Operational Reports

Data collection methods: Interview, Observation, Focus Groups, Document Review

Does the individual have the knowledge, skills, and experience to perform?	Yes	No
Does the individual know how to do it? Does he/she have knowledge requirements?	Yes	No
Is the individual good at it? Does he/she meet the skill requirements?	Yes	No
Is the performer new to the task?	Yes	No
Was the poor performer once a good performer?	Yes	No
Is the task called for on a frequent basis?	Yes	No
Could the performer do what you need if he/she knew his/her life depended on it?	Yes	No
If the performer had only one thing to accomplish, and everything to do it with, and could name his/her own reward for doing the task, could the person complete the task?	Yes	No

B. Performance Capacity: Performer Responsibility

Data sources: Performers, Supervisors, Operational Reports

Data collection methods: Interview, Observation, Focus Groups, Document Review

Is the performer physically able to perform?	Yes	No
Is the performer mentally able to perform?	Yes	No
Is the performer socially (emotionally) able to perform?	Yes	No

C. Motivation/ Self- Concept: Performer Responsibility

Data sources: Performers, Supervisors

Data collection methods: Interview, Observation, Focus Groups

Is the performer self- motivated?	Yes	No
Does the individual want to perform no matter what?	Yes	No
Is the performer able to monitor his/her own performance?	Yes	No
Has the performer been carefully selected and assigned to the task?	Yes	No
Does the individual see him/herself as competent?	Yes	No

D. Expectations and Feedback: Supervisor/ Management Responsibility

Data sources: Performers, Supervisors, Policy Documents

Data collection methods: Interview, Observation, Focus Groups, Document Review

Are expectations clear to the performer (i.e., Does the performer know what to do?)?	Yes	No
Are appropriate benchmarks in place?	Yes	No
Will the performer know how he/she is doing, (i.e. When he/she has done a job correctly?)?	Yes	No
Does the performer receive feedback or follow-up?	Yes	No
Is the performer provided with the appropriate level of performance challenge?	Yes	No
Is the performer provided with coaching?	Yes	No
Are Developmental plans in place to support performer?	Yes	No

E. Tools and Processes: Supervisor/ Management Responsibility

Data sources: Performers, Supervisors, Policy Documents, Best Practices

Data collection methods: Observation, Focus Groups, Document/ Literature Review

Do existing processes used by performers work?	Yes	No
Does the performer have the capacity to perform (quantity, quality, and timeliness)?	Yes	No
Do the performers have the tools to do the job?	Yes	No
Does the organization establish and maintain selection and training policies and resources?	Yes	No
Is supporting documentation, job aids, and/or other performance support available to the performer?	Yes	No
Does the process provide the information and human factors required to maintain it?	Yes	No
Has the degree of work pace, structure, and organization required of the performers been identified?	Yes	No
Is the work area suitable?	Yes	No
Does the physical environment support the accomplishment of the required results?	Yes	No
Do both formal and informal Coast Guard leaders (management structure) support the accomplishment of the desired results specified?	Yes	No
Does the Coast Guard's commitment to learning support the accomplishment of the desired results specified?	Yes	No
Does the organization have the leadership, capital, and infrastructure to achieve its mission/goals?	Yes	No
Do the policies and rules/accepted traditions and ceremonies/accepted behaviors and norms of the Coast Guard support the accomplishment of the desired results specified?	Yes	No
What are the forces, within and outside of the organization, that encourage or inhibit accomplishment of a result?	Yes	No
Are there organizational context barriers that may prevent long-term or continued success of the solution?	Yes	No
Are there primary and/or secondary stakeholders, and owner of this opportunity/solution that will support its adoption and diffusion?	Yes	No

F. Rewards, Recognition & Incentives: Supervisor/ Management Responsibility
Data sources: Performers, Supervisors, HR Documents, Best Practices
Data collection methods: Interview, Focus Groups, Document/ Literature Review

Is performance rewarded?	Yes	No
Are rewards linked to accomplishments?	Yes	No
Is there an expectation of rewards?	Yes	No
Are rewards consistent?	Yes	No
Are incentive plans linked to changes?	Yes	No
Are incentive plans achievable?	Yes	No

Appendix N: Root Cause Analysis Report

At the end of the root cause analysis phase, the analyst shall present to the client a Cause Analysis Report outlining the underlying causes contributing to the problem. The analyst will seek agreement with the client on the report.

List gaps:

List data sources and collection methods used to analyze gaps:

- Interviews
- Document Review
- Focus Group
- Survey
- Etc.

List cause(s) for gaps:

Classify causes:

Example Root Cause analysis report:

Performance Gap	Root Causes	Classification
1. 42% of office correspondence is incorrect. Data sources: (Performers, Supervisors, Policy Documents) Data collection Methods: (Interviews, Focus Groups, Observation, Document Review)	Staff selection process does not adequately assess/gauge writing skills.	Performance capacity Skills & Knowledge Motivation and Self Concept
	No criteria used to judge writing skills	Tools/Processes Expectations/Feedback
	No/inadequate/ ineffective training to address this performance need.	Expectations/Feedback Skills & Knowledge
	No/ inadequate job aids to address this performance need.	Tools and processes Skills & Knowledge
	No/inadequate/ineffective personalized feedback to staff regarding their writing skills.	Expectations/Feedback
	Rewards for gaining writing skills (i.e., learning to write better) do not serve as effective incentives.	Rewards, recognition, incentives
	No deadline for response clearly communicated to staff by supervisors.	Expectations/Feedback
	Staff not required by their management to adhere to stipulated deadlines.	Expectations/Feedback Rewards, recognition, incentives

Appendix O: Intervention Development & Selection Tool

This tool is designed to lead to the selection of the most cost-effective, highest quality interventions available.

Step	Who	Action
1	Analyst, Owner of Performance	Brainstorm Solutions: • The Brainstorming session should have two distinct phases. The first phase is the idea generation phase. At this point, as many potential interventions as possible are created, regardless of initial perceptions of how "doable or appropriate" each solution is. In other words, NO idea is a bad idea. Use table 1 below to guide this process
2	Analyst, Owner of Performance	Narrow the list based on the intervention's appropriateness. Appropriateness is defined in this situation to mean "the closeness of the fit of the solution to the business strategy of the organization and to the identified causes."
3	Analyst	A manageable number of solutions at this point would be 3-5 for each Performance Gap.

The table below links causes of performance gaps to possible interventions or solutions: This list is not exhaustive, but rather serves as a tool for the analyst to work from.

Table 1. Root Causes & Possible Interventions

IF Root Causes is:	Then possible Interventions include:
Lack of Skill and/ or Knowledge	• Training • Documentation, job aids • Coaching • Performance Support Systems • Knowledge management tools and databases
Lack of Motivation & Self Concept (including lack of appreciation for value and lack of confidence)	• Information, so workers can see benefits, impact, and value • Links to work challenges • Use of role models • Early successes to instill confidence • Participatory roles in selecting goals • Health & wellness
Lack of Performance Capacity	• Better selection and job-person matches • Team building • Health & wellness
Lack of Expectations & Feedback	• Coaching supervisors and managers • Career/work development plans • Appraisal systems
Lack of Tools & Processes	• Work and process redesign • New and/or better tools and technologies • New and/or better work environment • Organizational redesign • Culture change • Staffing • Resources
Lack of Rewards, Recognition & Incentives	• Revised policies • Revised contracts • Training for supervisors and managers • Incentive, recognition, and bonus plans

(Allison Rossett, Analysis for Human Performance Technology, Stolovich and Keeps (Eds.), p.147).

Appendix P: Rating Interventions

Use the questions contained in table 1 to rate each performance improvement intervention. Many of the questions can be used in the initial evaluations of the intervention. The methods for collecting the information can include a discussion board, e-mail, face-to-face interviews, focus groups, or an online survey.

Table 1: Intervention Rating Criteria

Rationale - Refers to both the external and internal organizational environment. It borrows from strategic planning theory to assess the appropriateness of the selected solution. Is the mission of the organization, work processes, and individual performance, aligned with the performance requirements? Rationale also assesses appropriateness in terms of Return on Investment. How much is the problem costing the organization in monetary terms? Once the cost of the problem is determined, the benefits of the solution may be estimated. ROI is further predicted using a cost-benefit analysis that will be explained in the Value section.

Strategic - Organizational Context	Organization - Unit Context	Performer Context
• Are the solution objectives linked to the organizational mission and vision? • Are performance requirements linked to the mission of the organization? • Has the value of the solution been estimated in terms of impact on current and future DOR effectiveness? • Has criteria for success of the solution been identified in terms of operational results, e.g. increased quality, reduced cycle time? • Has criteria for success of the solution been identified in terms of financial results? • What are the organizational context barriers that may prevent long-term or continued success of the solution? • Do the policies, rules, accepted behaviors and norms of the DOR support the accomplishment of the results specified in the Performance Assessment?	• Are the solution objectives linked to the unit?	• Are the solution objectives linked to the job? • Can the resources required of the intervention meet the quality standards of performers and their supervisors?

Table 1: Intervention Rating Criteria

Value - Refers to the value added to the organization by the selected solution. We will use a cost-benefit analysis to complete our ROI estimate. Cost-benefit analysis is used to determine whether the organizational benefits of the intervention will equal or exceed the intervention costs. Essentially, ROI is equal to the dollar amount in organizational results (cost benefits) divided by the actual cost of the intervention; this number can be expressed as a ratio (benefit: cost), or a percentage when multiplied by 100 (Keller, 1994). After the cost-benefit is calculated for each possible solution they will be compared to find the most cost-effective solution. This process is helpful in gaining the support of management and sponsors.

Strategic - Organizational Context	Organization - Unit Context	Performer Context
• Is a solution cost-benefit analysis planned for this project? • Has a continuous improvement plan including impact evaluation been completed for this solution? • Will the monetary value of the results exceed the cost of the solution?	• Who are the organizations stakeholders that incur the costs of the interventions? • What types of costs will be incurred (e.g., fees, time, materials, equipment, space, energy, environmental impact, labor, transportation, quality of life, societal and opportunity costs)? • Over what duration of time will planning, set-up, implementation, and maintenance/cessation costs be incurred?	• Is the degree to which the performers use the new solution similar or different across work centers, departments, etc.?

Integration - Assesses the feasibility of the selected solution into the organization's current resources and structure. It refers to the abilities and constraints of the given system to hinder or enable the use of the performance intervention. In addition to the physical constraints of the environment, integration also inspects the skills and knowledge, incentives, motivation and consequences of the performers.		
Strategic - Organizational Context	**Organization - Unit Context**	**Performer Context**
• Is the solution responsive to the documented needs? • Does the solution adequately address the causal reasons for existing gaps in results? • Will the solution be maintained by the command long enough for positive results to manifest? • What are the constraints of the given system's resources? • Are the tools and resources needed to integrate the solution available?	• Do the physical resources and environment support the accomplishment of the results specified in the Performance Analysis? • Does the performer have the tools to do the job? • Do existing processes work? • Will supporting documentation, job aids, and other performance support be available? • Is there time in the work schedule for performers to use the new solution? • Are the goals achievable? • Are incentive plans linked to changes? • Are rewards linked to accomplishments? • Are there non-monetary incentives for use of the new solution?	• Will the solution meet performance requirements? • Is the solution responsive to the specifications of the job/task at hand? • Does the solution interface with existing resources and processes used by performers? • Will the performer be able to access and utilize the solution?

Acceptability (Innovation/Change Adoption) - By the organization and its human performers is important in the implementation of a new solution. It assesses the extent to which the new solutions will be accepted, adopted, and supported by the stakeholders, managers, and performers involved. Acceptability may analyze factors such as the performer's acceptance of new technology, new work processes, etc. Advantages over current practices are also assessed. Factors that may make the intervention successful at conception and in the long-term may also be evaluated.

Strategic - Organizational Context	Organization - Unit Context	Performer Context
• Is management generally supportive of the objectives of the solution; i.e. is it an opportunity to address concerns they have? • Does management see an advantage to the solution over current practices? • Is there a primary stakeholder, and owner of this solution that will support its adoption and diffusion? • Is there organizational awareness of the solution and its potential benefits? • Do enough performers possess the skills and knowledge required to fully understand the solution and its implications? • Does the DOR's commitment to learning support the accomplishment of the results specified in the Performance Assessment? • Do both formal and informal leaders support the accomplishment of the results specified in the Performance Assessment	• Does the management structure (i.e. organizational chart) support the accomplishment of the results specified by the Performance Assessment? • Are expectations clear to the performer? Do workers know what is expected of them on the job? • Will the performer know how he/ she is doing, i.e. when he/she has done a job correctly? • Does the performer receive feedback or follow-up? • What are barriers that may prevent long-term or continued success of the intervention? • Will use of learned skills be expected on-the-job? How soon following implementation?	• Is the performer self-motivated, i.e. does the performer want to do good work? • Can the performer monitor his/her own performance? • Has the performer been carefully selected and assigned to the task? • Is the performer provided with the appropriate level of performance challenge? • Is the performer physically/ mentally/ socially able to perform? • Does the performer have the knowledge/ skills required? • Do performers perceive skills learned to be relevant to the job? • What degree of work pace, structure, and organization is required of the workers?

Appendix Q: Intervention Selection Report

At the end of the intervention selection and design phase, the analyst shall present to the client a report outlining the recommended interventions that address the underlying causes contributing to the problem and close the performance gap. The analyst will seek agreement with the client on the report.

List recommended interventions for each performance gap:

List data sources, collection methods and criteria used to rate interventions:

- Interviews
- Document Review
- Focus Group
- Survey
- Etc.

Example Intervention Selection report:

Performance Gap - 42% of office correspondence is incorrect.
Data sources: (Performers, Supervisors, Policy Documents)
Data collection Methods: (Interviews, Focus Groups, Observation, Document Review)

Root Causes	Classification	Possible Interventions	Rating (1 Low to 5 High)			
			Rational	Value	Integration	Acceptability
No/inadequate/ ineffective training to address this performance need.	Skills & Knowledge	Training	2	1	4	4
		Job Aid	4	5	2	2
Staff selection process does not adequately assess/gauge writing skills.	Motivation and Self Concept	Change hiring process	4	4	1	1
No/inadequate/ ineffective personalized feedback to staff regarding their writing skills.	Expectations/ Feedback	Coach Supervisors	4	4	2	2
		On-line training	2	2	3	3
Rewards for gaining writing skills (i.e., learning to write better) do not serve as effective incentives.	Rewards, recognition, and incentives	Change reward policy	4	4	4	4
		Implement public recognition program	4	4	4	5

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Appendix R: Performance Systems Analysis (For an overview see Section 3.6)

PSA Process

This table displays the, "Who What, When and Why" of the PSA process. The types of analyses and performance interventions are customized for each project, depending upon the requirements for the system or subsystem. Note that each phase has an ending point. If permission is granted, the HPT work moves into the next phase.

PHASE 1 -- Alignment			
What:	**Why:**	**When:**	**Who:**
Initiate RFA Process	To establish the needs and parameters of the project.	Upon identification of need for performance analysis.	CG-132-1, PTC, project sponsor's rep and project logistics manager.
Comprehensive List of Systems and Subsystems	Before decisions can be made on what analysis is required, all systems and subsystems are listed. This step is necessary for pre-alignment efforts. It will help to determine PSA project scope.	Work begins upon approval of RFA.	CG-1321 and PTC, project sponsor's rep and project logistics manager.
Identify Maintenance Philosophy	Provide project or system's maintenance philosophy and what jobs will be included: operators, maintainers, shore-side support, depot support, supervisors, etc.	Prior to development of Statement of Work (SOW).	Project sponsor's rep, project leaders; CG-1321 provide as Government Furnished Information (GFI) to Coast Guard HPT practitioners or HPT contractor.
Write Statement of Work (contractor work only)	If the PSA is to be conducted by contracted personnel, it is critical that a clear and enforceable SOW is prepared. The type of SOW is based upon acceptance of deliverables (not time and materials).	A Request for Proposals (RFP) will be issued for PSA to be contracted to non-Coast Guard HPT professionals.	The funding source for the PSA, CG-1321, PTC, and project logistics manager.
Designate Internal or External HPT Professionals	Some PSA analysis can be conducted by Coast Guard HPT practitioners. If source is to be external, a contract will be awarded.	Will be project dependent.	Project contracting officer with CG-1321, PTC, sponsor's rep and project logistics manager.

PHASE 1 – Alignment, (Continued)			
What:	**Why:**	**When:**	**Who:**
Alignment Meeting	To define the analysis process and deliverables in detail and to obtain alignment on key issues: project scope, decision makers, key decision points, deliverable reviewers, funding and funding source, identification of key personnel, and the business goals that will be affected, etc.	Within 5 working days of contract award if contracted; within 5 days of PSA assignment for Coast Guard HPT professionals	Meeting attendees include: Coast Guard HPT practitioners or HPT contractor, funding source, CG-1321, PTC, project logistics manager if an acquisition, project sponsor's rep
Follow-up Alignment Report	The report serves as an agreement for and formal documentation of how the project will be conducted for all parties to be satisfied with the outcomes; basically this is a contractual agreement among the parties. This document will guide project performance until completion. On multi-year projects it may become necessary to realign with the attendees and to revise the Alignment Report to keep it current with Coast Guard needs.	Immediately following alignment meeting. Since the Alignment Report must be cleared through all attendees, it may take a week or more to finalize. Coast Guard HPT practitioners or HPT contractor finalizes the report based on feedback and sends a final copy after all issues are resolved.	Coast Guard practitioners or HPT contractor produces the report and sends it forward for electronic concurrent clearance. **NOTE:** There is no formal project until alignment is reached.

PHASE 1 –Alignment, (Continued)			
What:	**Why:**	**When:**	**Who:**
Analysis Plan with Timetable, Milestones, and Key Decision Points	To guide the Coast Guard HPT practitioners or HPT contractor through the PSA process. The Analysis Plan needs to include what each deliverable in Phase 1 will be, the timetable for the analysis, the milestones for this phase and end with a Key Decision Point indicating whether the PSA will enter Phase 2.	No more than 5 working days after the alignment agreement. The Analysis Plan will be finalized based on feedback; a final copy will be submitted to all alignment meeting attendees. No PSA work is to be conducted until the Analysis Plan is approved.	Coast Guard HPT practitioners or HPT contractor prepares and forwards to the alignment meeting attendees for electronic concurrent clearance.
Identification of New or Unique Systems, Equipment or Requirements	Before decisions can be made on what analysis is required, all new and unique systems, subsystems, and requirements involved must be identified.	Work begins immediately after approval of the Analysis Plan; due date for this deliverable is set in the Analysis Plan.	Coast Guard HPT practitioners or HPT contractor prepares and submits the deliverable to CG-1321; they may request PTC, sponsor, project logistics manager to review and provide comments; CG-1321 will accept or reject the deliverable.
Prioritization of Systems or Subsystems to be Analyzed	Funding may be limited for the analysis work so it is necessary to determine, which systems or sub-systems need to be analyzed first, second, and so on.	Upon approval of the New or Unique Systems, Equipment or Requirements deliverable.	Coast Guard HPT practitioners or HPT contractor makes recommendations to CG-1321 and the project logistics manager who will decide the sequence of work to be done.

PHASE 1 – Alignment, (Continued)			
What:	**Why:**	**When:**	**Who:**
Analysis Type Selection and Rationale	There is no "one size fits all" analysis for a system or subsystems. Each project may be different. Only essential analysis work is to be conducted.	Upon approval of the Prioritization for Analysis list.	CG-1321, with support from PTC and the project logistics manager, will determine analysis type(s); then direct the Coast Guard HPT practitioners or HPT contractor to conduct the analysis.
Identification of Existing Performance Interventions for the System	The new system, platform, or organization may be a replacement for an existing system. If so, there may be performance interventions (including training) already in place that may support the new system.	As the first step in the analysis process for each system or subsystem.	Coast Guard HPT practitioners or HPT contractor reviews extant data, existing curricula, job aids, interventions; interviews SMEs and APs.
Determination of Whether Existing Interventions Meet Needs	It is important to know whether the existing interventions will close performance gaps on the new system. If any or all of the existing interventions meet the needs, new ones may not be needed.	After assessing existing performance interventions.	Coast Guard HPT practitioners or HPT contractor collects, analyzes, and reports the information. The deliverable is sent to CG-1321 for review and approval.
KEY DECISION POINT • **Review of Deliverables (either accept or reject; rejected reports returned to analysts for corrections and resubmission)** • **Feedback to Analysis Team with formal comments** • **Decision to continue with PSA (enter Phase 2)** • **Definition of next steps, analysis types, expected deliverables and timetable for Phase 2**			

PHASE 2 -- Analysis			
What:	**Why:**	**When:**	**Who:**
Realignment of Project for Phase 2	To redefine the analysis process and summarize Phase 1 deliverables. Obtain alignment on key issues: scope and deliverables for Phase 2.	Upon approval to initiate Phase 2 by CG-1321.	Meeting attendees include: Coast Guard HPT practitioners or HPT contractor, funding source, CG-1321, PTC, project logistics manager if an acquisition, project sponsor's rep.
Update Alignment Agreement	The alignment agreement from Phase 1 is revised to encompass Phase 2 key issues, scope, and deliverables. **NOTE:** No further action is conducted until alignment is reached.	Immediately following realignment meeting send a final copy after all issues are resolved.	Coast Guard HPT practitioners or HPT contractor updates the agreement; forwards for concurrent clearance.
Update Analysis Plan	To guide the Coast Guard HPT practitioners or HPT contractor through the PSA Phase 2 process. The Analysis Plan needs to include what each deliverable in Phase 2 will be, the timetable for the analysis, the milestones for this phase and end with a Key Decision Point indicating whether the PSA will enter Phase 3.	No more than 5 working days after updating alignment agreement.	Coast Guard HPT practitioners or HPT contractor, CG-1321, PTC, project logistics manager.
Conduct the analyses in accordance with Section 3.1 - 3.5 as appropriate.	To determine finding and recommendations for job performance requirements on the system or subsystem.	Upon approval of Analysis Plan.	Coast Guard HPT practitioners or HPT contractor
Approve each analysis deliverable	To ensure findings and recommendations are clear, concise, and feasible. **NOTE:** No cost analysis work is to be conducted until each analysis deliverable is approved.	Within 30 calendar days after receipt of each analysis deliverable, as applicable.	CG-1321, PTC, project sponsor's rep, project logistics manager.

PHASE 2 – Analysis, (Continued)			
What:	**Why:**	**When:**	**Who:**
Prepare Cost Analyses in accordance with Section 3.5	To provide program with various alternatives for the recommended performance interventions and projected costs of each.	Upon approval of the analysis deliverables.	Coast Guard HPT practitioners or HPT contractor.
KEY DECISION POINT • **Review of Deliverables (either accept or reject; rejected reports returned to analysts for corrections and resubmission)** • **Feedback to Analysis Team with formal comments** • **Decision to continue with PSA (enter Phase 3)** • **Definition of next steps, analysis types, expected deliverables and timetable for Phase 3**			

PHASE 3 -- Immediate Interventions			
What:	**Why:**	**When:**	**Who:**
Realignment of Project for Phase 3	To redefine the analysis process and summarize Phase 2 deliverables. Obtain alignment on key issues: scope and deliverables for Phase 3.	Upon approval to initiate Phase 3 by CG-1321.	Meeting attendees include Coast Guard HPT practitioners or HPT contractor, funding source, CG-1321, PTC, project logistics manager if an acquisition, project sponsor's rep.
Update Alignment Agreement	The alignment agreement from Phase 2 is revised to encompass Phase 3 key issues, scope, and deliverables.	Immediately following realignment meeting; send a final copy after all issues are resolved.	Coast Guard HPT practitioners or HPT contractor updates the agreement; forwards for concurrent clearance. **NOTE:** No further action is conducted until alignment is reached.
Develop Immediate Intervention Plan	To guide the Coast Guard HPT practitioners or HPT contractor through the PSA Phase 3 process. The Intermediate Intervention Plan needs to include what each deliverable in Phase 3 will be, the timetable for the analysis, the milestones for this phase and end with a Key Decision Point indicating whether the PSA will enter Phase 4.	No more than 5 working days after updating alignment agreement.	Coast Guard HPT practitioners or HPT contractor, CG-1321, PTC, project logistics manager.

PHASE 3 -- Immediate Interventions, (Continued)			
What:	**Why:**	**When:**	**Who:**
Pre-Design of Immediate Interventions in accordance with TCYorktown Instruction 1550.1 TRACEN YORKTOWN HUMAN PERFORMANCE TECHNOLOGY (HPT)/INSTRUCTIONAL SYSTEMS DESIGN (ISD) HANDBOOK (MANUAL) **and Training Systems SOPs**	For each skills/knowledge deficiency task identified in the analysis phase, the following are needed: step-level data and sub-steps; job aid versus memory data; and parameters and constraints.	Upon approval of Immediate Intervention Plan with agreement on what interventions are required.	Coast Guard HPT practitioners or HPT contractor.
Approval of Pre-Design of Immediate Interventions	Before moving into the design of interventions, it is necessary to have all pre-design efforts approved to ensure they meet performance requirements.	Upon completion of pre-design efforts in accordance with Immediate Intervention Plan.	CG-1321, PTC, project sponsor's rep, project logistics manager.
Design and Develop Immediate Interventions in accordance with TCYorktown Instruction 1550.1, TRACEN YORKTOWN HUMAN PERFORMANCE TECHNOLOGY (HPT)/INSTRUCTIONAL SYSTEMS DESIGN (ISD) HANDBOOK (MANUAL) **and Training Systems SOPs**	To address skills/knowledge deficiencies identified in the analysis, produce an overall curriculum plan, course and module plans; produce courses or FAM training check sheets; produce electronic performance supports; produce job aids.	Upon approval of pre-design level work in accordance with Immediate Intervention Plan.	Coast Guard HPT practitioners or HPT contractor.

PHASE 3 -- Immediate Interventions, (Continued)			
What:	**Why:**	**When:**	**Who:**
Approval of Immediate Interventions	Before moving into the implementation of immediate interventions, it is necessary to have all design and development efforts approved to ensure they meet performance requirements.	Upon completion of design and development work and in accordance with Immediate Intervention Plan.	CG-1321, PTC, project sponsor's rep, project logistics manager.
Implement Immediate Interventions	To prepare initial crew or personnel to meet immediate job requirements.	Upon approval of design and development work and in accordance with Immediate Intervention Plan.	As directed by CG-132 and project sponsor's rep.
Evaluate the Implemented Immediate Interventions in accordance with Evaluation SOP, Volume 3	To provide formative evaluation data for decision-making or revisions to immediate interventions.	Concurrent with the implementation of the immediate interventions.	Coast Guard HPT practitioners or HPT contractor, CG-132, PTC, SMEs and project sponsor's rep.
Revise Immediate Interventions	To correct and clarify interventions after evaluation.	After initial implementation.	CG-132, PTC, project sponsor's rep, project logistics manager, and Coast Guard HPT practitioners or HPT contractor.

KEY DECISION POINT

- **Review of Deliverables (either accept or reject; rejected reports returned to analysts for corrections and resubmission)**
- **Feedback to Analysis Team with formal comments**
- **Decision to continue with PSA (enter Phase 3)**
- **Definition of next steps, analysis types, expected deliverables and timetable for Phase 3**

PHASE 4 -- Sustainment Interventions			
What:	**Why:**	**When:**	**Who:**
Realignment of Project for Phase 4	To redefine the analysis process and summarize Phase 3 deliverables. Obtain alignment on key issues: scope and deliverables for Phase 4.	Upon approval to initiate Phase 4 by CG-1321.	Meeting attendees include: Coast Guard HPT practitioners or HPT contractor, funding source, CG-1321, PTC, project logistics manager if an acquisition, project sponsor's rep.
Update Alignment Agreement	The alignment agreement from Phase 3 is revised to encompass Phase 4 key issues, scope, and deliverables.	Immediately following realignment meeting; send a final copy after all issues are resolved.	Coast Guard HPT practitioners or HPT contractor updates the agreement; forwards for concurrent clearance. **NOTE:** No further action is conducted until alignment is reached.
Develop Sustainment Intervention Plan	To guide the Coast Guard HPT practitioners or HPT contractor through the PSA Phase 4 process. The Sustainment Intervention Plan needs to include what each deliverable in Phase 4 will be, the timetable for the analysis, the milestones for this phase and end with a Key Decision Point indicating whether the PSA will enter Phase 4.	No more than 5 working days after updating alignment agreement.	Coast Guard HPT practitioners l or HPT contractor, CG-1321, PTC, project logistics manager.

PHASE 4 -- Sustainment Interventions, (Continued)			
What:	**Why:**	**When:**	**Who:**
Pre-Design of Sustainment Interventions in accordance with TCYorktown Instruction 1550.1 TRACEN YORKTOWN HUMAN PERFORMANCE TECHNOLOGY (HPT)/INSTRUCTIONAL SYSTEMS DESIGN (ISD) HANDBOOK (MANUAL) **and Training Systems SOPs**	For each skills/knowledge deficiency task identified in the analysis phase, the following are needed: step-level data and sub-steps; job aid versus memory data; and parameters and constraints.	Upon approval of Sustainment Intervention Plan with agreement on what interventions are required.	Coast Guard HPT practitioners or HPT contractor.
Approval of Pre-Design of Sustainment Interventions	Before moving into the design of interventions, it is necessary to have all pre-design efforts approved to ensure they meet performance requirements.	Upon completion of pre-design efforts in accordance with Sustainment Intervention Plan.	CG-1321, PTC, project sponsor's rep, project logistics manager.

PHASE 4 -- Sustainment Interventions, (Continued)			
What:	**Why:**	**When:**	**Who:**
Design and Develop Sustainment Interventions **in accordance with TCYorktown Instruction 1550.1**, TRACEN YORKTOWN HUMAN PERFORMANCE TECHNOLOGY (HPT)/INSTRUCTIONAL SYSTEMS DESIGN (ISD) HANDBOOK (MANUAL) **and Training Systems SOPs**	To address skills/knowledge deficiencies identified in the analysis, produce an overall curriculum plan, course and module plans; produce courses or FAM training check sheets; produce electronic performance supports; produce job aids.	Upon approval of pre-design level work in accordance with Sustainment Intervention Plan.	Coast Guard HPT practitioners or HPT contractor.
Approval of Sustainment Interventions	Before moving into the implementation of immediate interventions, it is necessary to have all design and development efforts approved to ensure they meet performance requirements.	Upon completion of design and development work and in accordance with Sustainment Intervention Plan.	CG-1321, PTC, project sponsor's rep, project logistics manager.
Implement Sustainment Interventions	To prepare initial crew or personnel to meet job requirements.	Upon approval of design and development work and in accordance with Sustainment Intervention Plan.	As directed by CG-132 and project sponsor's rep.

PHASE 4 -- Sustainment Interventions, (Continued)			
What:	**Why:**	**When:**	**Who:**
Evaluate the Implemented Sustainment Interventions in accordance with Evaluation SOP, Volume 3	To provide formative evaluation data for decision making or revisions to Sustainment interventions.	Concurrent with the implementation of the Sustainment interventions.	Coast Guard HPT practitioners or HPT contractor, CG-132, PTC, SMEs and project sponsor's rep.
Revise Sustainment Interventions	To correct and clarify interventions after evaluation.	After initial implementation	CG-132, PTC, project sponsor's rep, project logistics manager, and Coast Guard HPT practitioners or HPT contractor.
KEY DECISION POINT • **Review of Deliverables (either accept or reject; rejected reports returned to analysts for corrections and resubmission)** • **Feedback to Analysis Team with formal comments** • **Decision that PSA process is complete** • **End of PSA Project**			

NOTE: For a good example of a PSA, see Coastal Patrol Boat (CPB) completed project

PHASE 5 -- Evaluation			
What:	**Why:**	**When:**	**Who:**
Realignment of Project for Phase 5	To redefine the analysis process and summarize Phase 4 deliverables. Obtain alignment on key issues: scope and deliverables for Phase 5.	Upon approval to initiate Phase 5 by CG-1321.	Meeting attendees include: Coast Guard HPT practitioners or HPT contractor, funding source, CG-1321, PTC, project logistics manager if an acquisition, project sponsor's rep.
Update Alignment Agreement	The alignment agreement from Phase 4 is revised to encompass Phase 5 key issues, scope, and deliverables.	Immediately following realignment meeting; send a final copy after all issues are resolved.	Coast Guard HPT practitioners or HPT contractor updates the agreement; forwards for concurrent clearance. **NOTE:** No further action is conducted until alignment is reached.
Develop Evaluation Plan	To guide the Coast Guard HPT practitioners or HPT contractor through the PSA Phase 5 process. The Evaluation Plan needs to include what each deliverable in Phase 5 will be, the timetable for the analysis, the milestones for this phase and end with a Key Decision Point indicating whether the PSA will enter Phase 5.	No more than 5 working days after updating alignment agreement.	Coast Guard HPT practitioners or HPT contractor, CG-1321, PTC, project logistics manager.

PHASE 5 – Evaluation, (Continued)			
What:	**Why:**	**When:**	**Who:**
Conduct Level 3 Evaluation in accordance with Training System SOP Volume 3 and TCYorktown Instruction 1550.1, TRACEN YORKTOWN HUMAN PERFORMANCE TECHNOLOGY (HPT)/INSTRUCTIONAL SYSTEMS DESIGN (ISD) HANDBOOK (MANUAL)	To determine whether training or other interventions transferred to performance on the job.	Upon approval of Evaluation Plan.	Coast Guard HPT practitioners or HPT contractor, CG-132.
Revise Interventions as indicated by Level 3 Evaluation	To assure that the sustainment interventions continue to close any performance gaps.	Upon completion of Level 3 Evaluation and approval of the deliverable.	CG-132 and others as directed.
Develop a process to keep interventions current/updated	To maintain currency with equipment or job requirement changes.	Concurrent with revisions of performance interventions	CG-132 and others as directed
Sustain the performance interventions	To assure that performers continue to meet job requirements.	Ongoing over lifecycle of system or sub-system.	CG-132 and others as directed.

KEY DECISION POINT

- **Review of Deliverables (either accept or reject; rejected reports returned to analysts for corrections and resubmission)**
- **Feedback to Coast Guard HPT practitioners or HPT contractor with formal comments, if appropriate**
- **Decision that PSA process is complete**
- **End of PSA Project**

Appendix S: Analysis Selection Guide

Introduction

The specific purpose of conducting job and performance analysis is to fully document the requirements of a job and the work performed so that informed decisions can be made pursuant to providing people, equipment, and training to positively influence effective mission execution.

The analysis that we do and the reports that we write serve two primary customers. The upstream customers are the Program Managers, Acquisitions Managers, Training Managers, and Contractors who are primarily concerned with determining costs, ensuring alignment of intended performance with Coast Guard mission execution and strategic goals, and executing performance analysis contracts. The downstream customers are primarily the Coast Guard Training Centers who are primarily concerned with making efficient and effective use of training resources necessary to create instructional materials necessary to produce competent and confident performers.

To accomplish both of these goals, the Coast Guard has adopted a comprehensive process of analyzing job-site performance requirements as the basis for choosing effective performance interventions that influence the entire world-of-work that has been targeted for evaluation. To ensure that the right analysis methods are needs-based and outcome specific, the Office of Training and Workforce Development (CG-132) authorizes the use of the analysis types described in this section of the SOP.

Analysis Selection Criteria

Selection of the appropriate analysis type depends on two critical success factors that are the entering arguments for use of the analysis selection job aid:

- the need for conducting the analysis, and
- the purpose for which the results of the analysis will be used

Types of Analysis

The Analysis Selection Guide is the result of a careful evaluation of previous analysis reports. Based on that comprehensive analysis, the selection guide uses those two entering arguments listed above as the basis for guiding the selection of the following types of analyses that the Coast Guard uses to make informed decisions about job performance and resource requirements:

- New Performance Planning Analysis
- Occupational Analysis
- Diagnostic Analysis
- Training Requirements Analysis
- Strategic Needs Assessment

Additional Analytic Tools: JTA & CBAs

Many Performance Analysts and Instructional Developers are accustomed to using powerful analytic tools such as Job-Task Analysis and Forecasted Cost Comparison Analysis to support their specific needs.

Job-Task Analysis (JTA)

The Job-Task Analysis is a common tool that can be used to support the more specific Training Requirements Analysis (TRA). A JTA is a type of job analysis that is used to breakdown performance at the job level, the job-task level, and optionally at the step level. The decision to require each level of performance granularity is driven by the need and the purpose for which that level of information is to be used. The description of each level is listed below:

- **Duty areas** are the job's major divisions of work. as defined by its observable accomplishments. Each duty area is made up of a group of tasks that are related to that duty
- **Task** is a series of actions that lead to accomplishment of a meaningful outcome. A task can be performed independently of other tasks and has a definite beginning and end-point as described by the necessary steps
- **(Optional) Steps** are the required sequence of activities that are necessary to complete the task. This optional part of a JTA is commonly referred to as a Task Analysis (TA)

A Job-Task Analysis is an analytic tool that is used for two primary purposes: 1) to analyze the specific performance that is found or expected to be found at the job site as described in the hierarchical analysis that is made up of the procedures associated with each specific accomplishment, and 2) to organize the organizational relationships and job-level performance requirements to create a clear picture of how these performance requirements affect numerous other decisions regarding organizational structure, staffing requirements, performance requirements, and performance interventions.

Although there are many types of JTAs used for many different purposes, for the needs of the Coast Guard Training System, the JTA is useful in defining a performance hierarchy, in determining instructional resources and delivery methods, defining the curriculum design requirements, and for the development of instructional materials. As such, the JTA is more narrowly defined as producing a procedural analysis and/or a hierarchical analysis.

The procedures to use this analytic tool are contained in Standard Operating Procedures (SOP) for the Coast Guard's Training System (Vol 2, Section XYZ: Analysis).

Cost Benefit Analyses(CBAs)

A Cost Benefit Analyses (CBAs) is another analytic tool that has many different applications and methods. There are three types of cost benefit analyses (CBAs) that is used in the Coast Guard, they are, (1) Coast Comparative Analysis (CCA); (2) Cost benefit Analysis (CBA), and: (3) Return on Investment (ROI). For the purpose of the Coast Guard's Training and Workforce Development systems, the CBAs are primarily used to compare costs of performance interventions among various delivery modalities, calculates costs and benefits and then compares the results of each option, and finally the last level of analyses is how does the cost calculation impact the business after the program solution has been implemented. Typically, CBAs are used to compare development and delivery costs associated with CG classroom delivery, Government Off-the-Shelf delivery, Commercial Off-the-Shelf delivery, and e-Learning and/or web enabled delivery modalities.

The procedures to use this analytic tool are contained in Standard Operating Procedures (SOP) for the Coast Guard's Training System (Vol 2, Section XYZ: Analysis).

ANALYSIS SELECTION GUIDE				
SOURCE OF REQUEST →	• RFA • INTERNAL PROGRAM REQUEST • ACQUISITIONS PROJECT			
If the need is the result of…	***If the need is the result of…***	***If the need is the result of…***	***If the need is the result of…***	***If the need is the result of…***
New or changing requirements at the mission, strategic or organizational job-level. Any additional analysis at the major accomplishments, tasks, and steps level would be done for a different purpose and using one of the other types of analyses.	New equipment, new policy, new program request, new job and task-level performance requirements, or a significantly changed organizational environment	A requirement to correct an identifiable deficient organizational/performance outcome that is typically causing mishaps, injury, economic loss, or operational ineffectiveness.	An existing, or mandated requirement for individual or organizational performance for which existing courseware already exists or can be created An existing course that needs to be revised because of changes in the workplace, tri-annual curriculum review, or non-current courseware	An existing or new requirement for a thorough evaluation of the current performance requirements for a Coast Guard occupation
AND THE PURPOSE IS TO PRODUCE	***AND THE PURPOSE IS TO PRODUCE***	***AND THE PURPOSE IS TO PRODUCE***	***AND THE PURPOSE IS TO PRODUCE***	***AND THE PURPOSE IS TO PRODUCE***
A strategic evaluation of the impact on the training system of initial or changing performance and/or resource requirements A comprehensive listing of job-level requirements that will impact the hierarchical organizational structure requirements, and/or staffing standards to determine gaps between actual and optimal job accomplishments.	A comprehensive examination of the world-of-work that identifies all the factors that influence safe and effective performance. These factors are typically associated with skill & knowledge, environmental, motivation & incentive, and personnel selection. Also, a cost-benefit analysis of possible training modalities will typically be done to establish funding guidelines	An analysis report that identifies the Root Performance Deficiencies that caused the poor performance and recommendations for interventions that will eliminate the problem and restore effective performance. These recommendations will typically address factors such as S&K, environmental, personnel selection, and motivation & incentive factors.	A comprehensive review of existing CG, COTS & GOTS courses to determine if they meet performance requirements and provide a cost effect return on investment. If appropriate, a cost-benefit comparison of courseware costs should be conducted. Recommendations for revision of the current curriculum that is based on an analysis of the current job site practices, procedures and environment	Recommended changes to the existing Enlisted Performance Qualifications (EPQ) based on a comprehensive description the job performance requirements of a current or proposed Coast Guard enlisted occupation. Also, if appropriate, a cost-comparison analysis can be done to establish funding guidelines.
THEN PERFORM THIS TYPE OF ANALYSIS	***THEN PERFORM THIS TYPE OF ANALYSIS***	***THEN PERFORM THIS TYPE OF ANALYSIS***	***THEN PERFORM THIS TYPE OF ANALYSIS***	***THEN PERFORM THIS TYPE OF ANALYSIS***
Strategic Needs Assessment (SNA)	**New Performance Planning FEA (NPP)**	**Diagnostic Analysis**	**Training Requirements Analysis (TRA)**	**Occupational Analysis (OA)**

SNA Process Overview	NPP Process Overview	Diagnostic Analysis Process Overview	TRA Process Overview	OA Process Overview

• Project alignment
• Conduct extant data analysis of organization manuals
• Produce preliminary mission-job-hierarchy
• Conduct org-job analysis from following SME/AP source data:
  • Interview individuals
  • Interviews small groups
  • Observations
  • Survey
• Produce final job-level hierarchy and/or performance requirements list
• Write final report and make recommendations pertaining to job requirements and/or organizational structure.
• Note: the ORNA can be a prelude to conducting a Manpower Requirements Document or a Training Requirements Analysis
	• Review Alignment and NPP Job Aids
	• Conduct project alignment
	• Review existing documentation from client
	• Determine Major Accomplishments to establish normal/off-normal/ and emergency accomplishments
	• Produce task list and preliminary data:
	  • Stimulus
	  • Output
	  • Criteria
	  • Critical aspects
	• Obtain additional data:
	  • Speed
	  • Physical environment
	  • Frequency
	  • Consequences
	  • Complexity
	  • Change probability
	• Prioritize the performance
	• Conduct Cost-Benefit comparisons of existing CG, GOTS, & COTS curricula
	• Write final report and make recommendations based on the curriculum source that best meets performance requirements and life-cycle costs
		• Project alignment
		• Verify the General Problem
		• Determine tasks of deficient accomplishments
		• Determine Root Performance Deficiency
		• If appropriate, conduct job-task inventory
		• Pose cause hypotheses
		• Plan data collection methods
		• Collect evidence
		• Based on analysis of evidence, decide probable cause
		• Write final report and make recommendations
		• Note: It may also be appropriate to conduct a Cost-Benefit analysis to provide the costs associated with remedy.
			• Project alignment
			• Conduct extant data analysis
			• Produce preliminary job-task inventory list
			• Conduct job-task inventory from following SME/AP source data:
			  • Interview individuals
			  • Interviews small groups
			  • Observations
			  • Survey
			• Produce final job performance requirements list
			• Compare final performance requirements with existing curriculum TPOs
			• Conduct Cost-Benefit comparisons of existing CG, GOTS, & COTS curricula
			• Write final report and make recommendations based on the curriculum source that best meets performance requirements and life-cycle costs
			Cautionary Note: the decision to restrict the analysis to only S&K elements should only be made after careful consideration of the situation and it is absolutely clear that a training solution is preferred
				• Develop OA Slate
				• Project alignment
				• Develop OA survey
				• Administer survey
				• Analyze survey results
				• Prepare report
				• Report OA findings